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THE PRACTICE OF TRAUMATIC SURGERY *

JOHN J. MOORHEAD, M.D.

NEW YORK

A survey of the field of general surgery discloses the fact that traumatic surgery is the oldest and yet the newest type of surgery. To the ancients the care of the injured was the earliest problem presented; to moderns it is the imminent problem. In the periods long remote the care of those injured in tribal warfare was practically the only form of surgery, and it was, in effect, war surgery that produced surgeons of great renown who were adept in caring for the injured. Still later came that period in which accidents inherent to occupation became numerous; and thus arose the era of railway surgery and industrial surgery. The present is the era of transportation surgery, a veritable epidemic of automobile accidents of major character. The aviation era is on the horizon and already the airplane is becoming a factor in the production of the traumapathies.

The greatest era of all, the World War, is rapidly fading, and yet memory and experience will always rate those years as the greatest in the world's history in respect to the mass of the injured, the traumatic surgery sphere of mammoth proportions.

Here now at the end of 1930, with 1931 just ahead, it may be interesting and perhaps profitable to review the knowledge of trauma, to summate experience in terms of diagnosis, to formulate precepts in terms of treatment and to restate practice in estimating end-results.

Let it be understood at the outset that traumatic surgery is that branch of general surgery which segregates to itself the management of the injured irrespective of the source or site of the injury. That it is becoming a specialty is attested by the fact that the present meeting, like many others, is devoted to this problem, and that surgeons in all parts of the country are realizing that this type of service requires and demands just as high grade immediate attention as that accorded to acute abdominal surgery. The great hope for the future of traumatic surgery is that surgeons of experience now realize that this branch requires as much of their skill and attention as the more familiar emergencies of general surgery. The day has gone by when this class of work can be delegated to the juniors of the hospital staff, to the house officers, to the inexperienced. Hospitals are now staffed so that in rotation designated surgeons are assigned to give the immediate service so rightly demanded. It is becoming increasingly evident that the maximum of care and attention means the minimum of disability, physical as well as economic.

PHASES OF TRAUMATIC SURGERY

There are certain phases of traumatic surgery that are peculiar to it alone, and of these may be mentioned the following:

1. There is no incubation period in trauma; the physical insult occurs and the reaction appears instantly. Hence there are no slowly developing pathologic changes by which tissue resistance is built up; no defense barriers are created by the processes of time.

2. The trauma produces an immediate effect, and if treatment is to be for the trauma alone, this treatment must be provided before complications appear. If treatment is applied early, the trauma alone, uncomplicated, is being cared for. If treatment is applied later, the trauma plus complications are being cared for. A ruptured appendix or duodenal ulcer treated within six hours of onset usually results in cure. Likewise a trauma treated within this time limit usually results in cure. It is known, for example, that organisms do not appear in accidental wounds until after a period of six hours; likewise, it is known that muscular contraction in a fracture or dislocation is not serious until after a lapse of a similar period.

3. Traumatic cases require a constant follow through, and, unlike general surgical cases, the operating room phase may be only the prelude to long and tedious post-operative care. This peculiarity of itself makes this type of surgery unattractive to many general surgeons who, by experience, regard the operation as the essential element in treatment. A compound fracture or an infected wound may receive exacting care in the operating room; but that is only one step in the therapy—essential, to be sure, but by no means the final act of therapy. By contrast, the case of ruptured appendix treated by operation has been given the final treatment and usually little more is required.

4. Operations in a traumatized area are more likely to become infected than in a nontraumatized area. This is in part due to the presence of macerated muscle, fascia and soft parts bathed in a mixture of blood and serum. Practically speaking, such a menstruum is an autogenous culture medium than which there is no better culture medium. Hence, the percentage of infection in such cases is always higher than in other forms of pathologic change.

5. Trauma is no respecter of rank, sex, race, age or anatomic zones and thus demands wider and more varied knowledge on the part of those who undertake the treatment. In a given accident due to an autobus collision, or to a falling elevator, the lesions encountered

* Read before the Philadelphia County Medical Society, Dec. 10, 1930.
* From the Department of Traumatic Surgery, New York Post-Graduate Medical School, and Reconstruction Hospital Unit.

may vary from trivial abrasions and contusions to major abdominal, thoracic and cranial problems. Suddenly the hospital staff may encounter a group of injuries that have never before been witnessed, and the immediate proper treatment thereof means life itself or freedom from lasting disability. In ordinary surgical practice there are few exigencies of this sort, for the unusual pathologic case can generally be subjected to prolonged study and the plan of procedure is carefully and leisurely plotted in advance. Mere mention of this contrast visualizes the startling differences and the necessity for unusual preparedness if success is to be attained.

6. Traumatic cases inevitably lead to medicolegal, compensation and insurance elements. Every accident case is a potential source of some sort of claim that makes the patient an object of survey by an authority either designated or otherwise, and hence the usual relationship of doctor and patient does not pertain. There is often a "third party" relationship created, and the scrutiny thus accorded a physician's patient is not always flattering to his sense of surgical superiority or equality. In the ordinary practice of surgery, the relationship of the physician is closely linked alone to the patient or to the family, and rarely is there any outside factor to be considered. Not so in accident cases, for here now enters some of the elements already mentioned.

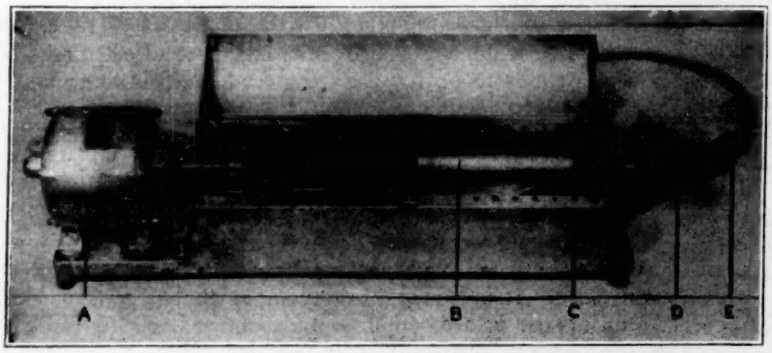

Fig. 1.—The repositor, showing the various elements that permit traction and relaxation at varying speeds with a pull ranging from 0 to 100 pounds: *A*, motor of one-fourth horse power; *B*, pull register; *C*, distance spacer; *D*, strap holder; *E*, plug-in cable.

7. The end-results of the management of the injured are much more obvious than in ordinary surgical cases. The ventral hernia following a laparotomy is not usually displayed even in this day of low cut gowns or badly cut abdomens. But a fracture of the ankle, or a fracture of the femur with a resulting limp and deformity, is an indelible exhibit that neither the patient nor the physician can hide or camouflage.

8. The chances for malpractice suits are legion in accident cases by comparison with ordinary surgical practice. This especially applies to fracture cases because the public has been taught to expect a cabinet maker's type of repair in a group of cases in which such an outcome is impossible even with open operation.

Experience warrants the statement that practically three fourths of all the traumas fall into the group of contusions, wounds, burns, joint injuries, fractures and dislocations.

From the standpoint of management of these, I believe that certain principles improve the results. Of these may be mentioned the following:

1. Early treatment is important. If definitive measures can be applied within six hours of the onset, complications are minimized to such an extent that the disability period is halved.

2. Mobilization rather than immobilization should be the aim, and if that is attained the need for prolonged physical therapy is minimized.

3. The employment of infrequent dressings limits the chances of secondary infection occurring and also limits the probabilities of stirring up infection in the initial lesion.

4. Delayed operation in infections is increasingly my practice and I postpone intervention until localization is accomplished by the use of hot wet dressings, plus elevation and splintage.

5. Operations in fractures and dislocations are featured only when the ordinary closed methods fail after reasonable trial. Since using the repositor (to be later described) I have still further reduced the operative incidence.

6. Anesthesia should be more universally employed. Local infiltration acts well in injuries of the joints. Spinal anesthesia has an established sphere in injuries of the lower extremities. Inhalation anesthesia (gas, oxygen or ether) is aided by the preliminary use of phenobarbital and like preparations. Intravenous anesthesia as yet is too unsafe and uncertain.

WOUNDS

As to the management of wounds, I regard every accidental wound as already infected and treat it accordingly. There are only two methods of sterilizing any wound; namely, by mechanical and by chemical means.

Mechanical sterilization is best accomplished by soap and water aided by careful mopping or light scrubbing. This is to be reinforced by judicious and nonsacrificial débridement when torn or frayed tissues so demand.

Débridement is attained when three criteria are present: healthy appearance, bleeding and contractility.

Chemical sterilization should be attempted only if infection is present, and every physician knows the value of any chemical or antiseptic is limited mainly to the lavage or diluent effect, to the killing of superficial organisms, to changing the local reaction, to fixing the organisms and to changing the flora. To rely on antiseptics alone is a vain hope, and to replace ordinary cleansing or débridement by any chemical is a useless and futile endeavor. However, there are many who believe in antiseptics just as there are many who believe that a lipstick can hide the anemic pallor. Each generation is caught by the glamour of some vaunted wound cure, and just now the profession is witnessing the intensive propaganda extolling the merits of a wound rouge that has attracted the attention of some surgical flappers who are apparently more adept in chromatic than in traumatic surgery. Where are some of the antiseptics of the not so long ago? Where is mercuric chloride? Where is phenol? How many use the chlorines? Just as well ask where is Omega Oil or Lydia Pinkham's. The undeniable fact is that any antiseptic capable of killing organisms also kills tissues, and that is a fatal factor to add in any case of trauma with tissues already devitalized. Of course, for first aid almost any antiseptic will do if soap and water are not available. For this purpose iodine is my personal choice, and one must not forget that this drug during

the war had the severest possible test under the most trying circumstances.

After cleansing the wound, I suture sparingly and always drain, using rubber for that purpose; a rubber band, for example, in small wounds. I use only gauze drainage for hemostatic purposes or for ballooning a cavity, and then I soak it in oil, petrolatum or liquid petrolatum.

In a contused or much lacerated wound, I place but do not tie the sutures until the end of the second or third day, thus practicing delayed or primosecondary suturing. This is a "safety first" principle applicable chiefly to highway and factory accidents. It is a management factor of the utmost importance and the incidence of tetanus, gas gangrene or other types of infection will be much lowered by a more universal adoption of this procedure.

I give tetanus antitoxin when there is any chance of soil infection. As yet, I have not had enough experience to recommend the use of combined serums, as, for example, tetanus and gas gangrene.

I strongly believe in rest and elevation for wounds, and hence splintage and suspension are a part of my procedure.

For infected wounds, as intimated, I am partisan to the prolonged use of hot wet dressings (saline, boric or magnesium sulphate solution), the heat maintained by an electric light. I incise only if there is local pain, local induration or local fluctuation—and I try to incise only within the area thus delimited.

In infections of the blood stream I believe in repeated transfusions, and apparently there is also some benefit in dextrose used as a continuous venoclysis.

BURNS

I have long been an advocate of the treatment by wet dressings of sodium bicarbonate during the early or dermatitis stage of burns. As yet I have not been converted to trinitrophenol or tannic acid. For the secretory and granulation stage I prefer the open air, sunlight or electric light treatment, especially in children. At night, or in the intervals between séances of open exposure, I use a dressing of equal parts of camphor liniment and olive oil, or boric ointment. I especially guard against contractures by enforced posture and exercises. I use débridement only in selected cases, notably in localized third degree burns.

INJURIES OF THE JOINTS

I believe in early mobilization in injuries of the joints and permit the use of the part promptly unless added pain and swelling contraindicate it.

In synovitis of the knee I aspirate at once. To do this, I visualize the front of the joint as the dial of a clock, the numeral XII at the top and VI at the bottom. For the right knee, I insert the aspirating needle at the numeral IX and pass it toward XII. For the left knee, I pass from III to XII. In each I push the patella outward so that it acts as a guiding shelf.

The knee joint is a fertile source for exploration and I believe that there is a definite entity, which I call the "surgical knee." If this articulation is compared to the abdomen one soon realizes that knee joint indigestion is cured more often by surgical attack than by drugs, braces and physical therapy. The analogy is so striking that calculi of the knee joint have become to me akin to the calculi in the gallbladder or the urinary tract. I believe in adequate exposure in approaching this joint, and even in arthrotomy for injury of the cartilage I no longer practice the small incision but, on the contrary, widely expose by an incision that starts above the patella and extends round the inner margin to the tibial tubercle. I have a series of 163 arthrotomies of this joint, all performed under a tourniquet, using the ultra-aseptic "hands-off," or Lane, technic.

Years ago, a small laparotomy incision was the rule; today the laparotomy incision is in every respect actually "exploratory" and, when the suspected appendix is removed, the gallbladder and pylorus are not forgotten. Exactly the same experience has befallen me in arthrotomy of the knee joints, so that now I perform only the extensive incision and in nearly all cases find enough unsuspected associated pathologic changes to justify this type of approach. There is no type of surgery that gives more uniformly good results, and I am quite certain that I shall extend the sphere of this operation to the cure of selected cases of arthritis with or without an initiating or contributing trauma.

FRACTURES AND DISLOCATIONS

The automobile era has changed the sphere of many community hospitals and made of them service stations

Fig. 2.—Fracture-dislocation of the fourth and fifth cervical vertebrae with marked cord symptoms: *A*, before and *B*, after repositor reduction. Alinement incomplete because of locking of the arches: subsequent laminectomy with almost complete relief of paralysis.

for the care of the injured. In many places the added financial burden of this influx of injured strangers has almost wrecked the institution, because these injured persons expect free service for themselves, although they pay for a like service to their machines.

To meet this exigency the road tax or gasoline tax should be so arranged that a portion of it would apply to the up-keep of the hospital and provide a suitable fee for the professional staff. There is no reason why the physician should not continue to be the samaritan; but in those ancient days the mode of transportation was the ass and the treatment was oil.

Now the process seems reversed, and the physician is the patient quadruped and the healing oil is sold at so much a gallon at a filling station. There is need also for the first aid crews of roadside employees who could be taught to give proper immediate attention to the injured pending the arrival of a physician or an ambulance. The mere matter of applying a Thomas or other kind of splint might prevent compounding or crippling.

To physicians there are several essentials in the management of fractures, and of these may be mentioned the following:

1. *Definition.*—A fracture is a wound of the bone, and as in soft part injuries there are two types: The incised group, or type II, in which the fragments are not separated; this is the nonoverlapped group of fractures. The lacerated group, or type I, in which the fragments are separated; this is the overlapped group of fractures.

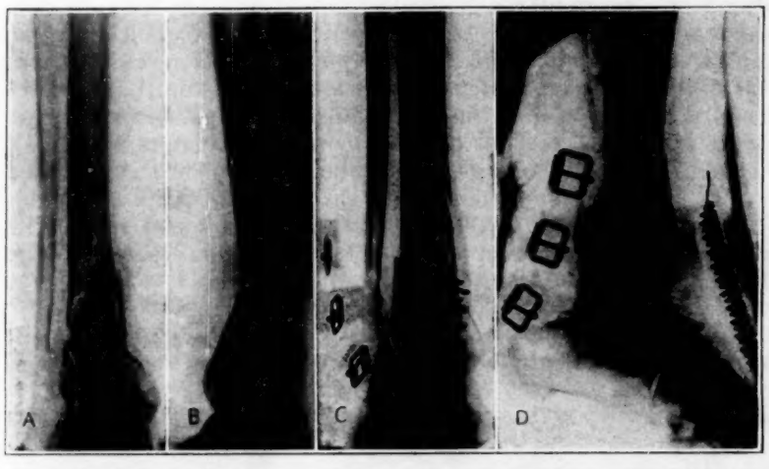

Fig. 3.—Comminuted fracture of the lower third of the tibia and fibula, extending into the ankle joint: *A, B,* before and *C, D,* after repositor reduction. Note the device for making traction, which has been left in situ after the plaster-of-paris casing has been applied.

There is as much difference in the management of these two types as there is in the management of a benign catarrhal appendix and a malign ruptured appendix. Either of these types may be simple (closed) or compound (open). In the nonoverlapped group splintage alone usually suffices; in the overlapped group, reduction is necessary before splinting.

2. *Immediate or Provisional Treatment.*—If the fracture is cared for within a few hours of onset the fracture alone is being cared for; if one waits, one is caring for the fracture plus complications. Hence every fracture should receive immediate treatment, and that means that reduction and splintage should be given at the earliest possible moment

Hospitals should be so staffed that the traumas are accorded the same grade of emergency treatment now accorded acute appendicitis or strangulated hernia. Provisional traction can be applied to a broken upper or lower extremity by a sheet or towel fastened to the wrist or ankle, in the absence of adhesive plaster traction. This can easily be improvised in any home; and in the hospital a gaiter or shoe can be used for the lower extremity and a gauntlet for the upper extremity. Too often roentgenograms are waited for to prove the diagnosis when in reality they should be used for proving the reduction. Too often one waits for subsidence of secondary swelling, forgetting that there is rarely any such thing if there is primary reduction.

Too often fracture cases are put at the last end of the operative sheet when they should be at the top of the list. Too often fracture cases are allotted to the juniors of the staff when they should be allotted to the seniors. The day has gone by when any old fracture can be treated in any old way at any old time by any old doctor.

3. *Splintage.*—The splint should first of all be safe, and next it should be simple. The splint should be fitted to the patient; not the patient fitted to the splint. Molded two piece plaster-of-paris splints are custom made and comply with these requirements.

For transport or provisional use, Thomas or other shaped splints are excellent.

Traction and suspension is especially valuable in fractures of the humerus and in the upper two thirds of the tibia.

Skeletal traction is my choice in fractures of the shaft of the femur and in the lower third of the tibia.

Overlapping fractures of the forearm nearly always require open correction with self notching or steepling. I have not plated a fracture in more than a decade. Occasionally a nail or wire is used when otherwise contact cannot be maintained. I do not believe in the routine use of nonabsorbable material in fracture surgery and regard it as dangerous and unnecessary except in selected cases when used by experienced surgeons.

Fractures of the neck of the femur in the aged, depleted and infirm are often best treated by adhesive plaster traction applied to the thigh, the knee being bent and supported thus on a Gatch bed or a pillow. The plaster-of-paris abduction spica is reserved for the more robust patient, or for those in whom reduction has been attained by the adhesive plaster traction. In fractures of the hip occurring in the light-weight aged —the wren type of elderly woman, for example—I advocate plaster of paris, fastening the patient to a wooden chair. This sitting up casing is especially applicable for home treatment as it permits the patient to sit upright, and if casters or wheels are attached to the chair the patient becomes ambulatory.

Fig. 4.—Comminuted fracture of the ankle: *A, B,* before and *C, D,* after repositor reduction.

In the joint fracture group, notably at the wrist, elbow and ankle, reduction under anesthesia is usually effective.

Fractures about the elbow in children require diligence to prevent the ischemic contracture so prone to occur, even when this calamity is anticipated and the

splintage is purposely made nonconstricting. It should not be forgotten that ischemia can occur in this and other varieties because of the injury alone and that the encircling dressings may have nothing to do with it.

For two years now I have been experimenting with a portable motorized device for setting fractures and dislocations and liberating stiff joints (fig. 1). I call this the repositor. The apparatus essentially consists of an electromotor attached to a spring device, which in turn is fastened to a strap or harness attached to the limb. When the motor is started, the strap pulls and then relaxes, so that intermittent traction is applied to the limb instead of the steady pull that has hitherto been employed when manual methods or the fracture table have been used.

A pull from zero to 100 pounds can be automatically given, with a variable period of relaxation and at varying speeds.

Every fracture and dislocation is set not by setting the bone but by setting the elastic muscles, tendons and ligaments, and hence the importance of intermittent traction as compared with continuous traction. This apparatus permits, so to speak, a systole and a diastole; in other words, labor pains are imitated.

When used with the fluoroscope, this method should make the setting of fractures and dislocations almost automatic and I am becoming convinced that this device is of value in that group ordinarily regarded as irreducible without operation.

In fracture dislocations of the joints, notably of the carpus, I have had excellent success. Likewise, in fractures of the cervical spine the repositor has been extremely valuable, and the newer model, soon to be marketed, will be more portable and more practicable to take to the patient when an electric light socket is available.

This motorizing of the fracture table is encouraging enough to me to warrant this preliminary statement of my experimentation.

OSTEOMYELITIS

Osteomyelitis, incidental to infected fractures or otherwise, is still an unsolved problem. Orr has done well to call attention to the value of débridement and immobilization; but it must not be forgotten that this method is essentially the bipp treatment used by the English during the war and later abandoned because of recurrences. Baer in Baltimore is quite enthusiastic over the maggot method and quite recently I spent half a day in surveying this procedure. However to me, despite many methods and many procedures, the old adage "Once an osteomyelitis, always an osteomyelitis" still prevails.

END-RESULTS

The restoration of function is the chief end of traumatic surgery. The methods of estimating end-results should be standardized so that all physicians will speak the same language. This cannot be done by the use of words such as "good," "fair" or "bad," but it can be done by the use of numerals if the common denominators can be mutually agreed on.

For some years I have been using the three factors of function, union and contour to list my own end-results. By function I mean capacity to perform. By union I mean the state of repair. By contour I mean the external appearance. Hence function + union + contour = end-results.

I rate perfect function as 60 per cent, perfect union as 20 per cent, perfect contour as 20 per cent. This rating makes actions three times more valuable than any other factor, and with that element all are in substantial agreement. For example, in a fractured wrist, I make an estimate that function is only half perfect and hence allot 30 per cent instead of 60 per cent; union also is only half perfect and hence scores 10 per cent instead of 20 per cent; contour is also limited half, and hence I rate it 10 per cent instead of 20 per cent. Now my rating is $30 + 10 + 10 = 50$ per cent. To me this seems a better determination than to use such words as "fair" or "poor."

Let some method be agreed on to solve the problem. Surely, if one can rate in figures at a horse show or cattle show one should be able to do likewise with human beings. Incidentally, if a substantial agreement can be reached there will less often be quarrels with compensation boards and like agencies who now have a rating scheme that all too often makes the physician's own rating none too flattering to his surgical accomplishments. If surgical societies throughout the country would adopt a rating scheme, the situation would soon be clarified and the statistics would then all be based on the same factors.

CONCLUSION

Here now in review some of the phases of traumatic surgery have been presented, special stress being placed on the treatment—traumatotherapy.

In closing let me venture the suggestion that the coming advances in surgery will be in this field, for in reality the tillage has just been begun and the harvesting awaits the diligent plowing and planting.

Finally, let me quote Einstein in something all can understand when he says: "Everything that men do or think concerns the satisfaction of the needs they feel, or the escape from pain."

115 East Sixty-Fourth Street.

HYPOGLYCEMIA ASSOCIATED WITH HYPERTROPHY OF ISLANDS OF LANGERHANS

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In recent years, since blood sugar determinations have become almost routine, hypoglycemia has become of increasing clinical importance. However, a review of the literature reveals that although much has been written concerning the subject there are marked variations in the blood sugar norms, the symptomatology and the etiology that are reported as characterizing hypoglycemia. It is my purpose to consider these observations, and to add to them a report of my own case, which clinically appeared to be uremia with low blood sugar estimations and at autopsy proved to be subacute glomerular nephritis and hypertrophy of the islands of Langerhans.

The divergence of opinion concerning the blood sugar normal is apparent to any one who seeks to establish a norm. Sendrail and Planques [1] cite eight authorities who agree that any reading below 90 mg. is to be considered a hypoglycemia. Joslin [2] states that the average fasting normal is 100 mg. per hundred cubic centimeters

1. Sendrail, M., and Planques, J.: Les états hypoglycémiques, Gaz. d. hôp. 100: 1105 (Aug. 20), 1137 (Aug. 27) 1927.
2. Joslin, E. P.: Treatment of Diabetes Mellitus, ed. 4, Philadelphia, Lea and Febiger, 1928, p. 192.

of blood. Pribram [3] reports three cases of mild chronic glycopenia in which the blood sugars ranged around 80 to 90 mg. and in which weakness, chronic constipation, vomiting, and headaches were the principal clinical symptoms. On the other hand, Harris [4] says that patients exhibiting hyperinsulinism usually show readings below 70 mg. Banting, Campbell and Fletcher [5] place between 70 and 50 mg. the milder symptoms of hypoglycemia, and below 50 mg. the acute, distressing ones. We have observed a fasting blood sugar of 54 mg. in a Negro patient who exhibited no symptoms whatever. Nevertheless, most authorities agree that the normal blood sugar limits are between 80 and 120 mg. per hundred cubic centimeters of blood.

The most complete symptomatology is that given by Sendrail and Planques,[1] who report a hypoglycemic syndrome that includes fatigue, anxiety, irritability, lassitude, gnawing hunger, twitchings of the muscles, tremors, phenomena simulating drunkenness, diplopia, vasomotor changes, hot flashes, secretory irregularities, lacrimation, profuse perspiration, vertigo, syncope, loss of emotional control, convulsions and coma. The authors emphasize the fact that these symptoms do not all occur simultaneously or in all cases. This statement is confirmed by Sevringhaus, Kirk and Heath,[6] whose opinion is that the blood sugar concentration at which symptoms appear varies in different individuals in the region between 40 and 50 mg. per hundred cubic centimeters of blood.

The conditions in which hypoglycemia are found are many and varied. Lowered blood sugars are discovered in the presumed circulatory changes which follow the intravenous injection of albumose and peptone in dogs, according to Pemberton,[7] who also states that hypoglycemia is produced by alkalosis and by hypocalcemia and that it follows the intravenous injection of sodium bicarbonate, which also decreases suprarenal hyperglycemia. Greenwald and Eliasberg [8] report two fatal cases of profound hypoglycemia following first degree burns.

Levine, Gordon and Derick [9] found a correlation between hypoglycemia and the physical condition of runners at the end of a race, such as the marathon. McCrudden and Sargent [10] cite the fact that hypoglycemia is found in progressive muscular dystrophy. Both Pettersson [11] and Mario Cayrel [12] have observed symptoms of hypoglycemia in parturients, and Cayrel asserts that the administration of sugar often induces uterine contractions. It is interesting to note that Van Creveld [13] made a study of sixty cases of premature children during fasting and noted a lower blood sugar than usually occurs in full term children of the same age. He considers this fact to be an argument for the functional immaturity of the premature.

The hypoglycemic cases which particularly challenge the interest of the investigator and exhibit the most marked reductions in blood sugar are those arising from definite pathologic changes. These abnormalities tend to fall into three etiologic categories: hepatic, endocrinal and pancreatic.

Hypoglycemia of hepatic origin is due to disturbances either in the sugar mobilization or in the storage functions of the liver. These dysfunctions seem to be caused by certain forms of hepatic disease. Lowered blood sugars occur with parenchymatous changes in the liver caused by chloroform, by arsphenamine, by the fungus *Agaricus bulbosus,* by phosphorus and by hydrazine. Josephs [14] reports eight cases, in children, of hypoglycemia which he believes was of liver origin. The postmortem observations of fatty degeneration of the liver cells, in two of these cases, confirm his opinion. Nadler and Wolfer [15] describe a marked hypoglycemia that was associated with a primary liver cell carcinoma so extensive as to involve 75 per cent of the liver tissue, with degeneration of the remaining liver cells.

Hypoglycemia is also coexistent frequently with certain abnormalities of the pituitary, thyroid and suprarenal glands. The fact that the suprarenal and pituitary extracts will raise the blood sugar, and therefore are used to abort hypoglycemic attacks, suggests that the suprarenal and pituitary glands may be a causal factor in lowered blood sugar. Evidence of the activity of the thyroid is presented by Holman [16] in the report of a case following subtotal thyroidectomy. A study of spontaneous hypoglycemia, with necropsy, was made by Pettersson,[11] whose patient developed hypoglycemia following a premature labor. The lowest blood sugar was 25 mg. per hundred cubic centimeters of blood, and autopsy revealed marked atrophy of the suprarenals and thyroid, with enlargement of the pancreas.

Glycopenia also follows high section of the cord, or section of the nervous connections of the suprarenals. Suprarenal insufficiency, complete removal of the suprarenals, and Addison's disease produce hypoglycemia. Marañon [17] is of the opinion that the manifestations of Addison's disease and of glycopenia are similar. He attributes these facts to the action and the effect which the thyroid, pituitary and suprarenal glands exert on the metabolism of the sugars.

Hypoglycemia induced by the injection of insulin and insulin-like substances is so well known that it requires no discussion. Severe cases of hypoglycemia, several of which were fatal, have been found in diabetes mellitus by Jonas,[18] Woodyatt,[19] Joslin [20] and others.

Certain tumors of the pancreas have been reported as a cause of glycopenia. Adenomas, or hyperplasias of this gland are not uncommon, as evidenced by the series of cases reviewed by Cecil [21] and Warren; [22] but, since they were not accompanied by blood sugar

3. Pribram, Ernst: Chronic Glycopenia, J. A. M. A. **90:** 2001 (June 23) 1928.
4. Harris, Seale: Hyperinsulinism and Dysinsulinism, J. A. M. A. **83:** 729 (Sept. 6) 1924.
5. Banting, F. G.; Campbell, W. R., and Fletcher, A. A.: Further Clinical Experience with Insulin in the Treatment of Diabetes Mellitus, Brit. M. J. **1:** 8 (Jan. 6) 1923.
6. Sevringhaus, E. L.; Kirk, W., and Heath, H. D.: Duration and Magnitude of Hypoglycemia After Insulin, Am. J. M. Sc. **166:** 677 (Oct.) 1923.
7. Pemberton, H. S.: Hypoglycemia with Notes on Two Cases, Brit. M. J. **1:** 1004 (May 30) 1925.
8. Greenwald, H. M., and Eliasberg, H.: The Pathogenesis of Death from Burns, Am. J. M. Sc. **171:** 682 (May) 1926.
9. Levine, S. A.; Gordon, Burgess; and Derick, C. L.: Some Changes in the Chemical Constituents of the Blood Following a Marathon Race, with Special Reference to Development of Hypoglycemia, J. A. M. A. **82:** 1778 (May 31) 1924.
10. McCrudden, R. H., and Sargent, C. S.: Hypoglycemia and Progressive Muscular Dystrophy, Arch. Int. Med. **17:** 465 (April) 1916.
11. Pettersson, A. S.: Ein Fall von spontaenem hypoglykämischen Koma, Acta med. Scandinav **69:** 232, 1928.
12. Cayrel, Mario: Hypoglycemia Syndrome, Riforma med. **41:** 493 (May 25) 1925.
13. Van Creveld, S.: Carbohydrate Metabolism of Premature Infants, Am. J. Dis. Child. **38:** 912 (Nov.) 1929.
14. Josephs, Hugh: Spontaneous Hypoglycemia in Childhood, Am. J. Dis. Child. **38:** 746 (Oct.) 1929.
15. Nadler, W. H., and Wolfer, J. A.: Hepatogenic Hypoglycemia Associated with Primary Liver Cell Carcinoma, Arch. Int. Med. **44:** 700 (Nov.) 1929.
16. Holman, E. F.: Hypoglycemia in Exophthalmic Goiter, Bull. Johns Hopkins Hosp. **34:** 69 (Feb.) 1923.
17. Marañon, quoted by Sendrail and Planques (footnote 1).
18. Jonas, Leon: Hypoglycemia, M. Clin. North America **8:** 949 (Nov.) 1924.
19. Woodyatt, R. T.: The Clinical Use of Insulin, J. Metab. Research **2:** 793 (Nov.-Dec.) 1922.
20. Joslin, quoted by Hartmann, F. L.: Hypoglycemia, M. Clin. North America **12:** 1035 (Jan.) 1929.
21. Cecil, R. L.: Concerning Adenomata Originating from the Islands of Langerhans, J. Exper. Med. **13:** 595 (June) 1911.
22. Warren, Shields: Adenomas of the Islands of Langerhans, Am. J. Path. **2:** 335, 1926.

analyses, they cannot be definitely connected with hypoglycemia. McClenahan and Norris [23] report a case of hypoglycemia associated with hypertrophy or adenoma of the islands of Langerhans. Thalhimer and Murphy [24] describe a similar case in which the only pathologic lesion found at autopsy was a small, primary, pancreatic nodule which, the authors believe, was either a carcinoma or an adenoma. Wilder and his colleagues [25] definitely associate carcinoma of the islands of Langerhans with hypoglycemia. In this case the patient presented typical hypoglycemic symptoms with lowered blood sugar, and necropsy revealed a carcinoma with metastasis arising primarily from the island cells. Recently, Howland, Campbell, Maltby and Robinson [26] reported the removal of a tumor from the body of the pancreas by operation, in a case involving hypoglycemia. Microscopic examination showed the tumor to consist of masses of cells of the type found in the islands of Langerhans, with certain features of a malignant growth. After operation the patient remained free from symptoms, and the blood sugar was normal. Four other patients with hypoglycemia have been operated on, and portions of pancreas have been removed. The microscopic examination in these cases disclosed nothing abnormal, and the hypoglycemic tendency was not entirely abolished.

Compensatory hypertrophy and hyperplasia of the islands of Langerhans in the pancreas of a child born of a diabetic mother are reported by Gray and Feemster.[27] The child, who, incidentally, was premature, died on the third day of life, at which time its blood sugar was reported as 0.67 mg. per hundred cubic centimeters of blood. The pancreas showed hypertrophy and hyperplasia of the islands of Langerhans, with normal acinous tissue, as well as hypertrophy of the cells of the medulla of the suprarenals. The average diameter of the islands was 290 by 212 microns, the largest being 394 by 335, compared with the normal average of 116 by 100 microns. This enlargement is considered by the authors as compensatory to the increased blood sugar of the mother.

The observations of Gray and Feemster were preceded by those of Dubreuil and Anderodias,[28] who also reported a case of giant islands of Langerhans in a child born of a diabetic mother. The islands were from twenty to thirty times larger than the normal, and the liver, in contrast to the postmortem observations of Gray and Feemster, was more than three times the normal weight, being 350 Gm.

The reports concerning the pathologic changes in the pancreas were particularly interesting in the light of my own case which, unlike the cases reported by Dubreuil and Anderodias and by Gray and Feemster, occurred in an adult who exhibited definite evidence of uremia. As far as it was possible to ascertain, a similar case with autopsy has not been reported in the literature.

23. McClenahan, W. U., and Norris, G. W.: Adenoma of the Islands of Langerhans with Associated Hypoglycemia, Am. J. M. Sc. **177**: 93 (Jan.) 1929.
24. Thalhimer, William; and Murphy, F. D.: Carcinoma of the Islands of the Pancreas: Hyperinsulinism and Hypoglycemia, J. A. M. A. **91**: 89 (July 14) 1928.
25. Wilder, R. M.; Allen, F. N.; Power, M. H., and Robertson, H. R.: Carcinoma of the Islands of the Pancreas: Hyperinsulinism and Hypoglycemia, J. A. M. A. **89**: 348 (July 30) 1927.
26. Howland, Goldwin; Campbell, W. R.; Maltby, E. J., and Robinson, W. L.: Dysinsulinism, J. A. M. A. **93**: 674 (Aug. 31) 1929.
27. Gray, S. H., and Feemster, L. C.: Compensatory Hypertrophy and Hyperplasia of the Islands of Langerhans in the Pancreas of a Child Born of a Diabetic Mother, Arch. Path. & Lab. Med. **1**: 348 (March) 1926.
28. Dubreuil, G., and Anderodias: Ilots de Langerhans chez un nouveau né, issu de mére glycosurique, Compt. rend. Soc. de biol. **83**: 1490, 1920.

REPORT OF CASE

A Negro man, aged 56, was found in the street, unconscious. On admission to the ward, Sept. 29, 1929, he could be aroused only with great difficulty. His wife stated that he had not been feeling well for the past eleven months. He had been tired and weak but had continued his work as a railroad watchman. Two weeks previous to his admission to the hospital, he had consulted a physician who told him that he had kidney trouble. In addition to the symptoms mentioned there had been one other—marked frequency of urination. The patient's past medical history revealed that he had had typhoid as a young man. The family history was unknown to the wife. They had had no children.

The patient, who was well developed and well nourished, was in a state of coma. The skin was cold and clammy. There was no paralysis or rigidity, and the reflexes were normal. The respirations were noisy, irregular and labored. The pulse was slow, regular, and of good volume; the blood pressure was 168 systolic and 92 diastolic. The sclera was slightly jaundiced. A marked arcus senilis was noted in both eyes; the pupils were equal but reacted poorly to light. The breath was fetid. The teeth were in poor condition. The tongue was clean. Scattered moist râles were heard at both bases of the lungs. The heart was not enlarged; the sounds were of good quality and regular, and no murmurs could be heard. The abdomen was soft, and no masses or organs were palpable. The hands and feet showed slight edema.

The following morning the patient was still unconscious and could not be aroused. He was somewhat rigid and exhibited numerous twitchings of the face and arms. The respirations were more labored and irregular. The chest was filled with moist râles, and there was a systolic murmur at the apex of the heart.

The urine showed a specific gravity of 1.012, a cloud of albumin, no sugar, and many hyaline and light granular casts. The blood count showed: erythrocytes, 2,900,000; leukocytes, 12,000; hemoglobin, 50 per cent. In the differential white count, neutrophils numbered 78 per cent; large lymphocytes, 4 per cent, and small lymphocytes, 16 per cent. The blood Wassermann test was negative. The blood urea nitrogen was 133 mg. per hundred cubic centimeters of blood and the blood sugar 45 mg.

At noon, 100 cc. of blood was removed, and 10 Gm. of dextrose was given intravenously. About one hour later the blood urea nitrogen was 98 mg. and the blood sugar was 68 mg. per hundred cubic centimeters of blood. At 10 p. m., the patient was given intravenously 500 cc. of 5 per cent solution of dextrose. Following the first blood sugar report, he had been started on retention enemas of 5 per cent dextrose.

The morning of October 1, the symptoms were more pronounced. The pulmonary edema was much more marked and respirations were Cheyne-Stokes in character. Since admission, the patient had voided very frequently but was incontinent. The urea nitrogen was 203 mg., the creatinine, 19.2 mg., and the sugar 25 mg. per hundred cubic centimeters of blood. The urine was the same as in the previous report. At noon, the patient was given 50 Gm. of dextrose intravenously. At 2:45 p. m., death occurred.

A postmortem examination, limited to an abdominal incision, was performed within an hour after death by Drs. John Eiman and Ethel L. Rahe, to whom I am indebted for the pathologic studies. Blood removed at autopsy showed a urea nitrogen of 197 mg., creatinine of 20.2 mg., and sugar of 92 mg. per hundred cubic centimeters. Both ureters and the pelves of the kidneys were dilated. The left ureter, at 2 cm. from the kidney, measured 13 mm. The right ureter, at about the same distance, measured 2.4 cm. in diameter. The capsule of the left kidney stripped with difficulty, leaving a fairly smooth surface. On section, the kidney was found to contain numerous pockets filled with blood-tinged urine. The right kidney was similar to the left. The microscopic picture was that of subacute glomerular nephritis.

The pathologic changes in the liver consisted only in passive congestion, and the spleen was not at all abnormal. There were areas of fatty infiltration of the suprarenals, but this condition was not considered to be so marked as to interfere with normal function.

The pancreas measured 17 by 4 by 2 cm., which is slightly smaller than normal. The head was rather soft and had a greasy feel. The remaining portion of the pancreas was fairly firm. The cut surface showed the lobules to be distinct, and there was a slight oozing of blood from the vessels. Grossly, there appeared to be no malignant growth or tumors of any kind. Microscopic examination revealed that in some places the interstitial connective tissue was considerably increased. This increase occurred most frequently in the areas where the enlarged islands were located. In other places, the interstitial connective tissue was about normal. There was no evidence of tumor formation throughout five sections. A slight atrophy of the parenchymatous tissue existed near the head. This atrophy was associated with a slight increase of fat in the interlobular connective tissue spaces. The larger vessels showed considerable fibrosis, and an occasional duct was dilated.

The islands of Langerhans, although definitely enlarged, were not distorted, and the cells showed no degeneration. Certain areas appeared to show a hyperplasia. In one very large island, fatty infiltration could be seen. There was no fibrosis or lymphocytic infiltration. Sections, stained by van Gieson's method, revealed that fibrous tissue was apparent interlobularly, and in some places was increased. However, there was no fibrosis in or around the connective tissue of the islands.

Ten islands of Langerhans from the pancreas were measured and ranged in measurement: 375 by 225 microns; 360 by 300; 345 by 330; 345 by 270; 330 by 200; 315 by 225; 300 by 285; 300 by 210; 270 by 150; 240 by 225. The average size of the ten islands was 328 by 242 microns.

The size of the islands of Langerhans in the normal pancreas varies greatly. Laguess [29] states that islands over 200 microns in diameter are large. MacCallum [29] found the normal average diameter to be 157 by 146 microns. Much larger islands have been noted in cases of diabetes by Cecil [30] and others.

COMMENT

In this case, the relation of the marked retention of nitrogen and creatinine to the urinary and postmortem observations in the kidney indicated that the precipitating cause of death most probably was of nephritic origin. Just what part the hypoglycemia played in this condition is difficult to say, for it has been found that the blood sugar determinations in uremia tend to be on the high side of normal. This observation is confirmed by Kolmer and Boerner,[31] who state that the blood sugar in uremia is from 0.1 to 0.2 per cent, while the normal is from 0.08 to 0.12 per cent.

It was not possible to establish any relation between the pancreatic changes and the observations on the urinary system. It would seem most probable that they had both been present for some time and were entirely separate pathologic conditions.

In view of the fact that postmortem examination revealed no other cause for the glycopenia than the hypertrophy of the islands of Langerhans, with supposedly increased insulin production, we conclude that this was the etiologic factor in the hypoglycemia of our case. We believe that hypertrophy of the islands of Langerhans offers an explanation for some cases of chronic hypoglycemia, which generally are of long duration, show only mild symptoms, and are relieved by a diet high in carbohydrates. It is conceivable that periods of high sugar ingestion, or temporary abnormal functioning of a sugar regulating mechanism other than the pancreas, may provoke hypertrophy of the islands and bring about a hyperinsulinism which continues after the unusual stimulus has been removed.

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31. Kolmer, J. H., and Boerner, Frederick: Laboratory Diagnostic Methods, New York, D. Appleton & Co., 1925, p. 325.

SUMMARY

Hypoglycemia appears to be due primarily to pathologic changes in the liver, endocrine glands or pancreas, and is seen in various diverse conditions.

A case is presented which clinically appeared to be uremia with low blood sugar estimations.

Autopsy showed hypertrophy of the islands of Langerhans and nephritic changes.

It would seem that hypertrophy of the islands of Langerhans may be a cause for hyperinsulinism and hypoglycemia.

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INTRAVENOUS USE OF EXTRACT OF LIVER

MAXIMAL RESPONSES OF RETICULOCYTES FROM A SINGLE INJECTION DERIVED FROM ONE HUNDRED GRAMS OF LIVER: PRELIMINARY COMMUNICATION *

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In the early stages of the chemical fractionation of liver, begun in an effort to isolate the active principle effective in pernicious anemia, Cohn, Minot and their associates [1] produced an active extract, the so-called fraction G, which could be readily prepared and was found to be eminently satisfactory in the treatment of pernicious anemia. Later Cohn,[2] West [3] and their respective associates produced numerous experimental fractions, which were given by mouth; but it was not until Cohn [4] was able to prepare fractions which gave no specific protein reactions and which had no reducing effect on the blood pressure of animals that it was considered possible to administer the active principle intravenously to patients. After this stage of the work had been reached, Cohn,[5] West [6] and their respective associates prepared many potent fractions, which were injected intravenously into patients.

The methods of preparing fractions then regarded as suitable for intravenous use were technically difficult and sufficiently laborious to render it unpractical to prepare more than the small amounts of experimental fractions utilized in the search for the active principle. With an entirely different objective, namely, to discover the least number of steps necessary to produce from liver a potent fraction that could be injected intravenously with safety, we have adapted to our practical

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3. West, Randolph; and Nichols, Emily G.: Liver Fractions in Pernicious Anemia, J. A. M. A. **91**: 867 (Sept. 22) 1928.
4. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: The Nature of the Substance Effective in Pernicious Anemia: III, Am. J. Physiol. **90**: 316 (Oct.) 1929.
5. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: The Nature of the Substance Effective in Pernicious Anemia, Tr. A. Am. Phys. **45**: 343, 1930.
6. West, Randolph; and Howe, Marion: Liver Fractions in Pernicious Anemia, J. Clin. Investigation **9**: 1 (Aug. 20) 1930.

problem the methods of preparing effective liver fractions contributed by these investigators. The original "fraction G" of Cohn, Minot and their associates [1] was precipitated in 95 per cent alcohol from the concentrated water soluble extractives of minced liver, from which extractives the proteins had previously been removed by iso-electric precipitation and heat. Although the precipitate so formed was readily soluble in water and had been freed of proteins and, by alcohol, of the larger polypeptide molecules possibly capable of producing allergic phenomena if intravenously administered, it was shown to contain a blood pressure lowering substance.[2] For this reason, only subfractions largely or entirely free of the depressor substance were given intravenously to patients. Nevertheless, because of the relative ease of preparation of this fraction G and because the objection to its intravenous use seemed to be based, in theory at least, solely on its blood pressure lowering properties, it appeared to us a suitable starting point for our studies.

In the course of observations on rabbits and cats carried out with several derivatives of this fraction, the experience of Cohn and his associates [7] was confirmed in that it was found to be impossible except by difficult and expensive procedures to eliminate or greatly reduce the blood pressure lowering substance. On the other hand, it was at once noted that the persistence of this depressor effect in cats was always short (from one to two minutes) and numerous observations showed that the magnitude of the effect could be easily controlled by varying the rate of injection of the material. For intravenous injection the derivatives of fraction G which were prepared by us appeared therefore to have no advantage over fraction G itself. Further observations then showed that, aside from a transient effect on blood pressure, aqueous solutions of the original fraction G had no evident deleterious action on rabbits when injected daily for several days in amounts of 0.2 Gm. per kilogram of body weight. On this basis, and because of the previous successful experience of Cohn, McMeekin and Minot [8] with intravenous injections of related fractions, it was considered safe to try on a patient with pernicious anemia the effect of a single intravenous injection of an extract containing a little over 0.1 Gm. per kilogram of body weight of fraction G dissolved, after washing with ether, in physiologic solution of sodium chloride. This solution was so prepared that 20 cc. contained the amount of material derived from 100 Gm. of liver; i. e., about 4.5 Gm. of a commercial preparation of fraction G. After solution, a small insoluble residue was removed by careful filtration or centrifugating and the resulting clear dark reddish brown liquid sterilized by boiling for five minutes.

The effect on the blood pressure of this patient and of others since injected intravenously with this material was found to be similar to that already observed in cats. Both systolic and diastolic pressures were decidedly lowered if the extract was injected faster than at a rate of 2 cc. per minute. The effect was more marked when the patients were more anemic or had a lower original blood pressure; but in all instances the blood pressure returned to its original level within one or two minutes after the termination of the injection. The immediate effects on blood pressure were evidently of no importance if the rate of the injection was governed by following the blood pressure or even after a little experience by observing the color of the patient's face and the character of the pulse.

All the patients stated that their faces felt hot during the injection; and they looked flushed. One patient who gave a history of bronchial asthma had an attack of severe dyspnea with some increase of the râles in the lungs at the termination of the injection. This effect suggests a parallel to the observations of similar symptoms with the intravenous injection of histamine which Weiss, Robb and Blumgart [9] have reported as occurring in cases of pulmonary emphysema or bronchial spasm. The attack was promptly abated by a subcutaneous injection of 0.5 cc. of epinephrine 1 : 1,000. It recurred at a second injection of the liver extract and was again promptly relieved by epinephrine; and it was apparently prevented at a third injection by epinephrine administered just before the injection began. In one patient a moderately severe chill occurred about half an hour after the injection was completed, and later the temperature rose to 103 F. There were no significant febrile reactions in the other patients. It is a common experience that the intravenous injection of many substances, even salt solution, into certain patients with pernicious anemia, especially those with low red blood cell counts, may produce a rigor and febrile reaction. Skin tests and conjunctival instillation of the extract performed in one patient ten days after the first injection of the extract showed no evidence of sensitization. No attempt was made to neutralize the extract before injection since its titrable acidity was small and its reaction about p_H 6. When leakage from a vein occurred during the injection, it was immediately painful but subsequently innocuous.

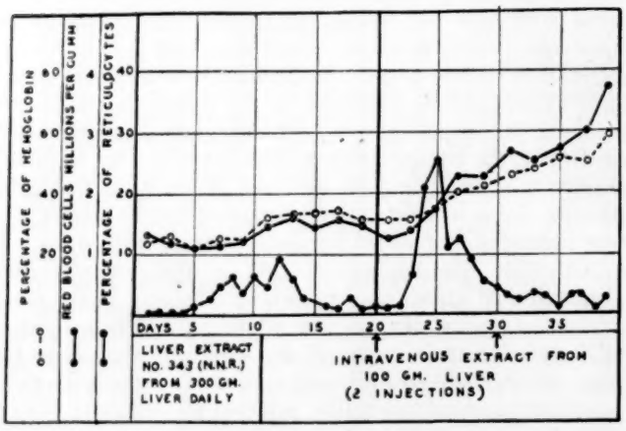
Although the suggestion that a difficulty in the absorption of substances favorably affecting blood formation in pernicious anemia might play a rôle in the etiology of certain cases of this condition has already been made,[10] the astonishing activity of the effective principle when intravenously injected was entirely unexpected. Indeed, the potency of the extract employed was such that in each of two patients with pernicious anemia a single intravenous injection of the amount of material derived from 100 Gm. of liver produced on the fifth day maximal reticulocyte responses of 27.8 and 25.4 per cent and a gain within ten days of a million red blood cells from initial levels of 0.98 and 1.49 million red blood cells per cubic millimeter, respectively. One of these patients, as shown in the accompanying chart, had previously received Liver Extract No. 343 N. N. R. derived from 300 Gm. of liver daily for ten days with some effect on the production of reticulocytes but with no significant change in the red blood cell count in twenty days. In a third patient with pernicious anemia the extract derived from 50 Gm. of liver produced on the sixth day the moderate response of 8.4 per cent of reticulocytes and a gain of more than 0.5 million red blood cells from an initial level of 1.29 million red blood cells per cubic millimeter within ten days. Since the administration of a single dose of 100 Gm. of liver by mouth to a patient with pernicious anemia is ordinarily without effect, these results are particularly striking. However, although these observations were carried out independently, the

7. Cohn, Minot, Alles and Salter (footnote 2). Cohn, McMeekin and Minot (footnote 5).
8. Cohn, McMeekin and Minot (footnotes 4 and 5)

9. Weiss, S.; Robb, G. P., and Blumgart, H. L.: The Velocity of Blood Flow in Health and Disease as Measured by the Effect of Histamine on the Minute Vessels, Am. Heart J. 4: 664 (Aug.) 1929.
10. Castle, W. B.; Townsend, W. C., and Heath, C. W.: Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia: III, Am. J. M. Sc. 180: 305 (Sept.) 1930.

credit for having first shown this remarkable difference between the effectiveness of the active principle when administered orally and parenterally belongs to Prof. M. Gänsslen of Tübingen,[11] who has recently reported similar results with daily intramuscular injections of a liver extract.

Riddle and Sturgis [12] reported the results of administering Liver Extract No. 343 N. N. R. derived from 3,000 Gm. of liver at a single dose by the stomach tube to each of three patients with pernicious anemia. Reticulocyte responses of 11.4, 19.4 and 55.7 per cent were obtained at initial red blood cell levels of 1.87, 1.43 and 0.69 million per cubic millimeter, respectively. The response of 19.4 per cent of reticulocytes in the second of these patients, who had an initial level of red blood cells of 1.43 million per cubic millimeter, is less than the response of 25.4 per cent of reticulocytes, observed in our previously mentioned case, which had a comparable initial level of 1.49 million red blood cells per cubic millimeter. None of the three cases reported by Riddle and Sturgis increased the red blood cell count by as much as a million per cubic millimeter in ten days, although a fourth patient given a single dose of


PERCENTAGE OF HEMOGLOBIN
RED BLOOD CELLS MILLIONS PER CU MM
PERCENTAGE OF RETICULOCYTES
DAYS 5 10 15 20 25 30 35
LIVER EXTRACT NO. 343 (N.N.R.) FROM 300 GM. LIVER DAILY
INTRAVENOUS EXTRACT FROM 100 GM. LIVER (2 INJECTIONS)

Comparison of the effect on reticulocyte production in a case of pernicious anemia of the oral administration of liver extract derived from 3,000 Gm. of liver given within a period of ten days, with the effect of a single intravenous injection of extract derived from 100 Gm. of liver (repeated at the end of the reticulocyte rise).

Liver Extract No. 343 N. N. R. derived from 1,500 Gm. of liver did so. It therefore seems probable that comparable reticulocyte responses are only obtained when from fifteen to thirty times the amount of active principle here given by a single intravenous injection is administered in a single dose by mouth. According to the data of Minot and his associates,[13] the effects on reticulocyte production observed in our two patients given intravenously the extract derived from 100 Gm. of liver are approximately what would be anticipated in similar patients given daily 225 Gm. of liver or the amount of Liver Extract No. 343 N. N. R. derived from 300 Gm. of liver.

Cohn, McMeekin and Minot [5] consistently obtained maximum responses of reticulocytes from the intravenous injection of 0.48 Gm. of their purest fraction. Recently West and Howe [14] have prepared a crystalline quinine salt of an acid present in liver of such potency that about 0.1 Gm. of the active principle (excluding quinine) would apparently give a maximum response of reticulocytes. The difficulties with which these investigators have had to cope in their fractionation is apparent since the material was derived by Cohn, McMeekin and Minot [15] from about 25,000 Gm. of liver and by West and Howe [16] from a similar amount until more recently that amount has been reduced to about 8,000 Gm. of original liver. Since the extract that we have used gave similar results, although derived from only 100 Gm. of original liver, it is evident that great losses occurred in the subsequent stages of purification. If the crystalline material prepared by West and Howe is assumed to be the pure effective principle, it is apparent that its concentration in commercial preparations of fraction G of Cohn and his associates is roughly 0.1 Gm. in 4.5 Gm., or about 2.2 per cent. Since it is known that the loss of potency in such preparations of fraction G is about 25 per cent of the effective principle in the original liver, it may be assumed that the amount of the effective principle in 100 Gm. of liver from which 4.5 Gm. of fraction G is derived is about 0.13 Gm., or about 0.65 per cent of its dry weight. In the light of our results it now seems probable that the estimate of a few hundredths per cent made by Cohn, McMeekin and Minot [5] is too small, but further purification of the active principle may somewhat reduce our present estimate. Furthermore, the concentration of the active principle assumed by these authors to be three thousand fold must be modified to a concentration of the active principle contained in 100 Gm. of liver (20 Gm. dry weight) to about 0.1 Gm., in the form of the active substance of West and Howe.[14] The greatest concentration so far obtained must therefore be about two hundred fold.

The problem of securing a satisfactory liver extract readily available for intravenous use was undertaken largely for the purpose of extending studies already made on the etiologic relationship of gastro-intestinal pathologic changes to pernicious anemia. A specific type of gastric defect in patients with pernicious anemia has already been demonstrated by one of us [10] and is regarded as the factor of primary importance in the development of the disease. The suggestion was made of the existence of a defect of absorption of hematopoietic factors contained in the food or possibly formed to a certain extent in the stomach of certain atypical cases of pernicious anemia, especially those associated with chronic disturbances of the lower intestine and an apparently normal gastric function. In the treatment of one of the cases previously referred to, the amount of Liver Extract No. 343 N. N. R. derived from 3,000 Gm. of liver when given by mouth during a period of ten days had relatively little effect on blood formation, as shown by the chart. Given thus to the average patient with pernicious anemia, that amount of potent substance should have produced a reticulocyte response approximately equal to that subsequently obtained from a single intravenous administration of the extract derived from 100 Gm. of liver. The simplest but not the only explanation of this insignificant result from oral administration is that it was caused by a relative

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13. Minot, G. R.; Murphy, W. P., and Stetson, R. P.: The Response of the Reticulocytes to Liver Therapy, Particularly in Pernicious Anemia, Am. J. M. Sc. **175**: 581 (May) 1928. Minot, G. R.; Cohn, E. J.; Murphy, W. P., and Lawson, H. A.: Treatment of Pernicious Anemia with Liver Extract: Effects upon the Production of Immature and Mature Red Blood Cells, Am. J. M. Sc. **175**: 599 (May) 1928.

14. West, Randolph; and Howe, Marion: A Crystalline Derivative of an Acid Present in Liver, Active in Pernicious Anemia, J. Biol. Chem. **88**: 427 (Aug.) 1930.

15. Cohn, McMeekin and Minot: Personal communication to the authors.

16. West and Howe: Personal communication to the authors.

impermeability of the intestinal wall of this particular patient, who, however, responded like the other patients to the active principle when given parenterally. To what extent such a condition is present in all cases of pernicious anemia or even as a normal physiologic condition in respect to the absorption of the active principle of liver is at present under investigation. Thus it is believed that the demonstration of the strikingly greater effectiveness of the active principle when administered intravenously than when given by mouth is possibly of significance in the etiology of the disease.

Finally, it would appear that the extract described is of potential therapeutic significance. The response to the active principle of liver may be hastened by its intravenous administration [5] and so be of life saving value to the very sick patient. In the so-called resistant cases, as exemplified by the patient just referred to, the method would seem to have valuable possibilities. By a repetition of the intravenous dose at intervals of ten days, the red blood cell count has been made to progress upward in a satisfactory manner. In the treatment of lesions of the spinal cord this method of administering the active principle or related substances such as vitamin B_{12} [17] may be of use. However, it cannot be too strongly emphasized at this time that the therapeutic possibilities of the extract described in this paper are still largely unknown and that an intravenous injection of any substance has potential dangers which cannot always be foreseen. Excellent sources of potent substance highly effective and easily administered by mouth are readily available even to the impecunious patient.[18] The immediate therapeutic need is not for new sources of the active principle but for persistence in the use of sufficient quantities of those already available.

SUMMARY

1. A readily prepared extract of liver (fraction G) hitherto administered by mouth has been found suitable for intravenous injection and highly potent in pernicious anemia.

2. Maximal reticulocyte responses were obtained from a single intravenous injection of the amount of extract derived from 100 Gm. of liver. One of the patients so treated had failed to respond satisfactorily to the previous oral administration of a similar extract derived from 3,000 Gm. of liver given within a period of ten days.

3. The possible etiologic and therapeutic significance of these observations is suggested.

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Precipitation with Cerebrospinal Fluids.—Three precipitation reactions of a colloid-chemical nature, among others, are employed with cerebrospinal fluids for diagnostic purposes: the colloidal gold (Lange), the mastic (Emanuel) and the syphilis (Kahn) reactions. In one case, colloidal gold is precipitated by the spinal fluid, in another case, colloidal gum mastic, and in the third, a dispersed solution of tissue lipoids. . . . As is true in the case of the Kann reaction, the colloidal gold and mastic reactions depend on the globulin fraction of the spinal fluid, the albumin fraction giving negative results. The globulin fraction gives results somewhat more sensitive than the unfractionated fluid, owing undoubtedly to removal of the protective action of the albumin.—Malloy, A. M.; Kahn, R. L. and Westall, L.: Precipitation with Cerebrospinal Fluids, *J. Infect. Dis.*, February, 1931.

THE CAUSE OF "PAINFUL BREASTS" AND TREATMENT BY MEANS OF OVARIAN RESIDUE

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It is my purpose in this communication to discuss the physiologic and pathologic processes underlying the condition of "painful breasts," to emphasize their etiologic relationship to ovarian and other endocrine dysfunction, and to report the results of the treatment on this condition by means of ovarian residue.

At every menstrual period the mammary glands are stimulated by hormones that arise in the sexual glands and circulate in the blood, resulting in a transitory swelling of these organs. The stimulus affects both the epithelial and connective tissue elements of the breast. In many women the breast changes associated with menstruation pass unnoticed. Many others complain of pain and tenderness in one or both breasts, and at times moderate enlargement is observed. In extreme examples, actual secretion of a milky fluid from the nipples may occur. In typical examples the pain begins from ten to fifteen days before the menstrual period and diminishes markedly or disappears completely with the onset of the period. In other examples the pain is unaffected by the periods. The pain is diffuse, is aching in character, and is generally more marked in one breast than the other. Examination of the breasts shows diffuse tenderness and, when the breasts are thin, a fine nodularity. The gland feels more solid than normal.

"CHRONIC MASTITIS"—MAZOPLASIA

The term "chronic mastitis," which is usually employed to designate this condition, is obviously erroneous. The state is not one of inflammation but one of hyperplasia of the epithelial and connective tissue elements closely allied to normal physiologic processes.

Sir Lenthal Cheatle [1] has recognized and described this condition in great detail and has recorded accurately the pathologic process underlying this syndrome. Cheatle has introduced the term "mazoplasia" in order to emphasize its physiologic nature and to separate it from other important pathologic states totally unrelated to it but which are usually included under the term of "chronic mastitis."

Mazoplasia is defined as that condition in which there is a certain type of desquamation of epithelial cells in the ducts and acini accompanied by hyperplasia of the pericanalicular and periacinous connective tissue and often new formations of acini. The shed epithelial cells accumulate in and distend the ducts and acini giving rise to diffuse pain and often generalized nodularity of the breast. The biologic activity of the epithelial cells ends in this form of desquamation and does not lead to the formation of cysts, papilloma or carcinoma. The only pathologic state that can be directly traced to mazoplasia is the formation of fibroadenomas. Under these circumstances, discrete tumors may be palpated.

EFFECT OF OVARIAN HORMONES ON THE MAMMARY GLANDS

That actively functioning ovaries are necessary for the growth and development of the mammary glands is now fully established. Removal of the ovaries in

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young rabbits from 2 to 5 weeks old prevents the normal development of the mammary glands.[2] Removal of the ovaries after puberty leads to a termination of the estrous cycle and to atrophy of the breasts. The implantation of ovaries into castrated animals leads to a new development of the breasts.[3] The induction of mammary growth in male guinea-pigs by transplantation of the ovaries has been accomplished.[4] The failure of breasts to develop in women with infantile ovaries is further important evidence of this relationship.

Transplantation of ovaries to an abnormal position with severed nerve connections results in a continuation of the estrous cycle in animals.[5] It is assumed, therefore, that the ovary exerts its influence on the mammary glands through its internal secretions and that a nerve connection is not essential.

The close relationship between the first menstruation and development of the breasts is best illustrated by those examples in which menstruation begins at an abnormally early age ("menstruatio praecox"). In these cases the early manifestations of puberty are associated with corresponding alterations of the mammary glands.[6]

MORPHOLOGIC CHANGES IN THE MAMMARY GLANDS AT MENSTRUATION INDUCED BY THE CORPUS LUTEUM

Rosenburg[7] studied the breasts and ovaries of women in relation to the menstrual phase and concluded that the corpus luteum of menstruation as well as the corpus luteum of pregnancy causes a physiologic hypertrophy of the mammary glands. Clinically, this state gives rise to fulness, tension and sometimes pain in the breasts during the premenstrual phase. Histologically, this phase is characterized by budding processes in the epithelium that are also characteristic of the early stages of pregnancy. If no pregnancy occurs, the budding processes regress until in the interval only the ducts are present. If the corpus luteum is absent, as in amenorrhea, hypertrophy does not take place and the budding processes do not form. Polano's[8] observations agree generally with those of Rosenburg with the exception that he failed to find the complete regression in the intermenstrual phase as described by Rosenburg.

Rosenburg's observations have been further substantiated by Berberich and Jaffé.[9] These investigators found that during the stage of proliferation of the corpus luteum (the premenstrual stage) the epithelial hyperplasia was most marked. With the onset of menstruation, regression of the epithelial budding process and disappearance of the round cells occurred, until at the time of new ovulation (from ten to fourteen days after the last menstruation) the breast is in a stage of rest. In cases of amenorrhea, epithelial hyperplasia does not occur.

THE ESTRUS-INHIBITING EFFECT OF CORPUS LUTEUM: EXPERIMENTAL EVIDENCE

From various observations it would appear that the corpus luteum, when functionally active, dominates the ovarian metabolism and inhibits the formation of the internal secretion which is an essential factor in producing proestrum and estrus besides hindering the maturation and rupture of the graafian follicles.[10]

The presence of the corpus luteum inhibits ovulation. In the guinea-pig, ovulation rarely occurs within from sixteen to eighteen days after a preceding ovulation,[11] but if the corpora lutea are removed from the ovaries the ovulation interval may be reduced to from twelve to six days.

Injection of the desiccated fat-free extract of cow's corpus luteum into a laying fowl immediately inhibits ovulation. When the injections are discontinued, ovulation and laying proceed as before the injections.

Marshall[10] has pointed out that under certain abnormal conditions the corpus luteum of the nonpregnant cow or heifer may persist for a prolonged period. Such a condition is usually associated with endometritis or some pathologic condition of the uterus or fallopian tubes and sterility with nonoccurrence of estrus. It has been shown that the nonoccurrence of estrus is due to the persistent corpus luteum. Thus if the corpus luteum is removed or destroyed, estrus will generally recur within from three to eight days and the animal may be caused to breed.

Parkes and Bellerby[12] have demonstrated that the ovary during lactation has a considerable estrus-inhibiting power and concluded that the effect was produced by the persistent corpora lutea of lactation which occur in the mouse. By an ingenious technic which makes the elimination of the corpora lutea possible without interfering with the functions of the ovary other than those performed by the corpus luteum, Parkes[13] has proved that the estrus-inhibiting activity of lactation is exerted solely through the corpora lutea, which are directly or indirectly caused to persist. He also showed that sodium hydroxide extracts of anterior pituitary has a luteal stimulating and estrus-inhibiting effect in the mouse.

CLINICAL EVIDENCE THAT THE CONDITION OF "PAINFUL BREASTS" IS ASSOCIATED WITH INCREASED CORPUS LUTEUM AND DIMINISHED FOLLICULAR SECRETION

There is considerable clinical evidence to indicate that the state of "painful breasts" is associated with excessive corpus luteum stimulation. A study of the character of the menstrual periods in women suffering from "painful breasts" reveals in the majority of cases

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Results of Treatment of Painful Breasts with Ovarian Residue

Patient	Age	Single or Married	Number of Pregnancies	Number of Children	Number of Miscarriages	Duration of Pain	Relation of Pain to Menstrual Periods	Character of Menstrual Periods	Physical Observations	Therapy	Result
1. A. M.	27	M	1	0	1	3 yr.	No definite relation	Began at 12; 28 day interval; duration, 4 days; flow scanty	Bilateral generalized tenderness and nodularity	Whole ovarian extract	Pain exaggerated; consistency of breasts unchanged
										Ovarian residue	Complete relief from pain and tenderness; softening of breasts and disappearance of nodules
2. P. L.	35	M	1	1	0	5 mo.	No relation	Began at 12; 24 day interval; duration, 3 days; flow moderate	Bilateral pain and tenderness; most marked in tail of left breast	High voltage x-rays	No change
										Ovarian residue	Slight temporary relief
3. H. S.	33	M	4	3	1	3½ yr.	No relation	Began at 15; 28 day interval; duration, 4 days; flow moderate	Slight tenderness; no masses	Diathermy	No change
									Straw colored fluid expressed from right nipple	Ovarian residue	Complete relief of pain; softening of breasts; menstrual periods lengthened
4. C. H.	35	S	0	0	0	1 yr.	Pain most marked one week before the menstrual period, and relieved with onset of menstrual period	Began at 14; 6 to 8 weeks interval; duration, 4 days; flow scanty	Both breasts large and full; generalized tenderness; thyroid enlarged	X-rays to thyroid and breasts	Moderate relief of pain
										Ovarian residue	Marked relief of pain and tenderness
5. H. G.	33	S	0	0	0	2 yr.	Pain most marked 2 days before menstrual period and is relieved by onset of period	Began at 15; 28 day interval; duration, 1 to 2 days; flow scanty	Generalized tenderness and nodularity both breasts	Whole ovarian extract	Pain and tenderness instead of being relieved with onset of menstrual period persisted throughout the period and were more intense
										Ovarian residue	Almost complete relief of pain and tenderness
6. M. S.	30	M	2	2	0	8 wk.	No relation	Began at 14; 21 day interval; duration, 4 days; flow profuse	Generalized nodularity; milky discharge expressed from both nipples	Ovarian residue	Discharge from nipples became straw-colored; pain and tenderness markedly diminished
7. C. S.	36	M	1	0	1	2 yr.	Onset of pain 3 weeks before menstruation; accentuated 1 week before menstruation and relieved at onset of period	Began at 16; 24 day interval; duration, 4 days; flow scanty	Generalized tenderness and nodularity	Ovarian residue	Pain and tenderness markedly improved; menstrual periods lengthened to 8 days; nodularity less marked; general condition of patient improved
8. M. S.	36	M	4	2	2	6 yr.	No relation	Began at 13; 25 day interval; duration, 3 days; flow scanty	Discharge of straw colored fluid from right nipple	Ovarian residue	Pain and tenderness markedly relieved; nodularity diminished
9. B. S.	31	S	0	0	0	9 mo.	No relation	Began at 13; 26 day interval; duration, 3 days; flow scanty	Moderate hypertrophy of breasts	Ovarian residue	Complete relief of pain and tenderness; menstrual periods lengthened to 6 days and flow increased in amount; general condition improved
10. R. W.	26	S	0	0	0	3 wk.	No relation	Began at 13; 26 day interval; duration, 3 days; flow scanty	Moderate hypertrophy; generalized nodularity	Ovarian residue	Marked improvement; tenderness and pain completely relieved
11. S. deV.	40	M	3	1	2	5 yr.	No relation	Normal	Generalized tenderness and nodularity	Ovarian residue	Pain not relieved
12. E. J.	39	M	3	2	1	1 yr.	Onset of pain 2 days before onset of menstruation; relieved during menstrual period	Began at 14; 28 day interval; duration, 3 days; flow scanty	No definite tenderness; slight nodularity	Whole ovarian extract	Pain and tenderness unaffected
13. J. B.	35	S	0	0	0	8 yr.	Pain most marked before the menstrual periods	Began at 13; 5 week interval; duration, 5 days; flow moderate	Extreme grade of nodularity of both breasts; numerous discrete nodules	Ovarian residue	Marked relief of pain and tenderness; remarkable diminution in nodularity; breasts much softer
14. F. K.	40	S	0	0	0	4 yr.	Pain most marked before the menstrual periods	Began at 13; 5 week intervals; duration, 2 days; flow scanty	Generalized tenderness and nodularity	Ovarian residue	Marked relief of pain and tenderness; breasts softened; menstrual periods lengthened to 5 days; general condition greatly improved
15. M. G.	43	S	0	0	0	5 yr.	Pain most severe before the menstrual periods	Began at 17; irregular, 5 to 6 weeks; duration, 2 days; flow scanty	Marked nodularity of both breasts; most marked on left	Whole ovarian extract	No change
										Ovarian residue	Complete disappearance of pain and tenderness; softening of breasts; partial regression of nodules in left breast; menstrual periods lengthened to 4 days; flow increased in amount

evidence of hypo-ovarian function. The menses are usually scanty in amount and of short duration. Taylor [14] has shown that a large percentage of women with painful breasts have suffered from irregular types of menstruation since puberty and that a short type of menstruation is found most often in relation to "chronic mastitis." It would seem that the overactive or persistent corpus luteum induces an abnormal hyperplasia of the epithelial and connective tissue elements of the breast leading to the condition of mazoplasia. Simultaneous with this action the estrus-inhibiting effect is manifested by the short and scanty menstrual periods.

From all considerations it appears that in the syndrome of "painful breasts" the corpus luteum dominates the ovarian metabolism, overstimulates the breast epithelium and connective tissue and causes excessive hyperplasia, distention of ducts and acini and pain, and suppresses the function of the remainder of the ovarian elements by its estrus-inhibiting influence. The obvious method of attack in an attempt to correct this pathologic state is to increase the deficient follicular and interstitial elements of the ovary (ovarian residue) and thereby counteract the overactive corpus luteum.

The treatment of painful breasts by means of corpus luteum is obviously illogical since all evidence favors the view that the condition is probably due to excessive corpus luteum stimulation. In fact, the administration of corpus luteum should and actually has in some cases resulted in an increase of the pain.

Attempts to control this state by the administration of whole ovarian extract are recorded in the literature with occasionally favorable results. If the state of "painful breasts" is caused by luteal overactivity, the importance of eliminating the corpus luteum and employing ovarian residue rather than whole ovarian substance is obvious. The literature contains only scattered references of attempts to control generalized pain in the breasts by endocrine therapy. Schweitzer [15] reports the case of a woman, aged 21, who began to menstruate at the age of 11. Three or four days before menstruation, the breasts swelled and became painful. For six months a milk secretion was present during the menstrual periods. Administration of whole ovarian extract resulted in a cessation of the milky secretion and disappearance of the pain in the breasts. In 1921 Bainbridge [16] reported a case of "lumpy breasts" in a woman, aged 42, who showed evidence of hypothyroidism, pigmentation and dryness of the skin. Treatment with thyroid extract and "multiple glandular secretions" resulted in a disappearance of the lumps in the breasts. (The author does not designate the nature of the "multiple glandular secretions.") The use of corpus luteum is mentioned by Lisser and others.

The table shows the results of treatment of fifteen patients suffering from "painful breasts," by means of ovarian residue (the residue from the fresh ovaries of the hog or cow, after the removal of the corpus luteum, dried and powdered). Tablets of ovarian residue were administered by mouth. The period of observation has been too short to establish the length of time necessary to continue the therapy in order to insure the permanence of the results. In two patients, ovarian therapy was discontinued after three months and the pain has not recurred (two months after discontinuing therapy). Observations are now under way to establish this point.

14. Taylor: Personal communication to the author.
15. Schweitzer, B.: Zur den Wechselbeziehung zwischen Genital- und Mamma-Funktion, Zentralbl. f. Gynäk. **47**: 717 (May 5) 1923.
16. Bainbridge, W. S.: The Human Breast, M. Press **92**: 111, 1921.

Dosage.—Although the optimum dosage has not been finally decided on, these observations indicate that 5 grains (0.3 Gm.) daily is usually inadequate to induce a definite effect. Patients who failed to respond to 5 grains daily showed a definite response when the dose was increased to 5 grains three times a day. In view of the fact that the most active period of corpus luteum proliferation begins in the intermenstrual phase, the patients were instructed to take 5 grains of ovarian residue three times daily, beginning fifteen days before the menstrual period and stopping with the onset of the period. Patients who responded only slightly were ordered to take an additional 5 grains daily, beginning immediately after the menstrual period and increasing to 15 grains (1 Gm.) daily fifteen days later. Some patients responded more readily, as indicated by the prompt relief of symptoms and increased menstrual flow. When the menstrual periods became excessive, the dose was diminished. Obviously, no standard dose can be formulated for all patients.

Results.—An evaluation of the effect of any therapeutic agent on pain must be made in a most critical manner, making certain of eliminating the psychologic factor. In this investigation, numerous means were employed to determine whether or not the pain was actually affected by the treatment. Since the pain in these cases is usually accompanied by exquisite tenderness of the breasts, this objective sign was used as an important criterion. A careful history of spontaneous relief from pain prior to treatment was taken in all cases. The administration of ovarian residue was alternated with that of whole ovarian substance and corpus luteum, and it was found that ovarian residue relieved the condition whereas whole ovarian substance and particularly corpus luteum usually accentuated the pain and tenderness. Variations in the dosage appeared to cause proportionate changes in symptoms and signs.

Four definite effects have been noted as a result of ovarian residue therapy: (1) relief of pain and tenderness in the breasts; (2) softening of the breasts and diminution or disappearance of nodularity; (3) restitution of the menstrual periods to a more normal state, and (4) improvement in general condition of the patients.

The extent to which ovarian residue therapy induced relief of pain and tenderness varied. In some patients the relief was complete. In many the pain and tenderness diminished markedly in severity, duration and frequency of occurrence. Some patients stated that the character of the pain changed from a severe, sharp and sometimes lancinating pain to a dull ache.

In every case that presented evidence of hypo-ovarian function, ovarian residue therapy caused an increase in the duration and amount of the menstrual flow and a diminution in the interval toward the normal twenty-eight day type. In several patients the menstrual periods became somewhat excessive, lasting eight days and occurring one week prematurely. This condition was promptly corrected by regulating the dose.

An interesting and unexpected result of the administration of ovarian residue was the unusually marked improvement in the general state of the patients, indicated by a disappearance of nervousness, and particularly a gain of weight. This was especially marked in patients who had very scanty menstrual periods, lasting only one or two days, which were increased under treatment.

The most striking effect was observed in patients who presented a marked nodularity of the breasts. Several

patients volunteered the information that the breasts were much softer. Careful observation of these breasts during various stages of the menstrual cycle convinced me that in many cases a marked decrease in nodularity occurred, and in several examples a total disappearance of localized nodules was noted.

In two patients (1 and 5) administration of whole ovarian substance resulted in an exaggeration of the pain and tenderness. When ovarian residue was substituted, a prompt relief of these symptoms occurred.

SUMMARY AND CONCLUSIONS

1. The pathologic state underlying the condition of "painful breasts," erroneously termed "chronic mastitis," consists of a certain type of desquamation of epithelial cells in the ducts and acini accompanied by hyperplasia of the pericanalicular and periacinous connective tissue. The shed epithelial cells accumulate in and distend the ducts and acini, giving rise to diffuse pain and often generalized nodularity of the breast. An exaggerated form of this condition may lead to formation of fibro-adenomas. To emphasize the physiologic nature of the syndrome, Cheatle [1] has proposed the term "mazoplasia" in place of "chronic mastitis."

2. The corpus luteum of menstruation and the corpus luteum of pregnancy are responsible for the normal physiologic hypertrophy of the mammary glands. During the stage of proliferation of the corpus luteum (the premenstrual stage) the epithelial hyperplasia is most marked and hyperplasia of the breast elements has been produced experimentally in animals by injection of corpus luteum.

3. Clinical, pathologic and experimental evidence clearly indicates that excessive epithelial and connective tissue hyperplasia giving rise to diffuse generalized pain and nodularity in the breasts in relation to menstruation may be due to excessive corpus luteum stimulation.

4. In patients suffering from "painful breasts" the corpus luteum dominates the ovarian metabolism and by inducing an excessive epithelial and and connective tissue hyperplasia causes diffuse pain and generalized nodularity of the breasts. At the same time the overactive corpus luteum suppresses ovulation and exerts an estrus-inhibiting influence leading to a hypofunction of the follicular and interstitial elements of the ovary, as indicated by the short and scanty menstrual periods in these cases.

5. The administration of ovarian residue apparently tends to cause a cessation of abnormal epithelial and connective tissue hyperplasia by counteracting the excessive corpus luteum secretion, thereby diminishing or removing its overstimulating influence on the breast elements.

6. The administration of ovarian residue by mouth has resulted in relief of pain and tenderness in a number of patients suffering from this condition. A definite softening of the breasts and actual disappearance of painful nodules have been observed in some cases. The menstrual periods in many are restored to a more normal state and the general state of the patients is improved.

7. The effect of ovarian residue on epithelial and connective tissue changes of the breasts is apparently specific. If an internal secretion be specific to the physiologic and disturbed physiologic conditions I have described there would appear a vista of potential importance between internal secretions and other and more serious conditions of the breast.

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ERYSIPELOID IN THE UNITED STATES

CLINICAL AND LABORATORY STUDY *

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The skin disease which Rosenbach [1] in 1884 designated as erysipeloid is now established as an infection with a human strain of the bacillus of swine erysipelas.

There are three generally accepted strains of the bacillus of swine erysipelas: human, swine and mouse. From cultural and morphologic differences, Rosenbach concludes that the three organisms are distinct. It is the consensus of many subsequent investigators—Prettner,[2] Preisz,[3] Jensen,[4] Rickmann,[5] Rahm,[6] Acel,[7] Meyn,[8] Bierbaum and Gottron,[9] ourselves [10] and others, who made bacteriologic and serologic studies of the organism obtained from different sources, that the organism is identical but modified in virulence and somewhat in morphology, through prolonged passage in their respective hosts.

The wide dissemination of bacillus of swine erysipelas is extraordinary. Its habitat is apparently dead matter of animal and plant origin. Swine are more frequently infected than any other animal, yet it is curious that a large percentage of healthy swine are carriers of the organism. According to Glässer [11] and also Pfeiler,[12] 50 per cent of all swine are carriers, without symptoms of the infection.[13] The organisms have been demonstrated in diseased cattle, sheep and birds by Prausnitz,[14] Biewener,[15] Meyn,[8] Schipp [16] and Poels.[17]

The bacillus of swine erysipelas is apparently either pathogenic or saprophytic throughout the animal kingdom. Virulence varies considerably in different species and in the same species. Man is relatively immune, particularly through the gastro-intestinal route. In human and swine infection, the organism has an affinity for the skin.

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* From the Research Institute of Cutaneous Medicine.
* Read at the Eighth International Congress of Dermatology and Syphilology, Copenhagen, Aug. 5, 1930.
* Owing to lack of space, this article is abbreviated here by the omission of three tables. The complete article appears in the authors' reprints.

1. Rosenbach, F. J.: Experimentelle morphologische und klinische Studien der Erreger des Schweinerotlaufs, Erysipeloid und Mäuseseptikämie, Ztschr. f. Hyg. u. Infektionskr. **63**: 343-371, 1909.
2. Prettner: Ueber die Identität des Bacillus Murisepticus und des Erysipelatos Porci, Berl. tierärztl. Wchnschr., 1901, p. 669, quoted by Rosenbach (footnote 1).
3. Preisz, H.: Beiträge zur Kenntnis des Schweinerotlaufs, abstr. Centralbl. f. Bakt. **11**: 109, 1892.
4. Jensen, C. O.: Die Aetiologie des Nesselfiebers und der diffusen Hautnekrose des Schweines, Deutsche Ztschr. f. Tiermed. **18**: 1891-92.
5. Rickmann: Zur Frage der Identität der Erreger des Schweinerotlaufs, des Erysipeloids und der Mäuseseptikämie, Ztschr. f. Hyg. u. Infektionskr. **64**: 362-364, 1909.
6. Rahm, H.: Zur Diagnose des Schweinerotlaufs, Med. Klin. **18**: 1217-1218 (Sept. 17) 1922.
7. Acel, D.: Zur Aetiologie des Erysipeloids, Deutsche med. Wchnschr. **50**: 988 (July 18) 1924.
8. Meyn, A.: Vergleichende Untersuchungen über Schweine und Geflügel-rotlaufbakterien, Deutsche tierärztl. Wchnschr. **36**: 334 (May 12) 1928.
9. Bierbaum, K., and Gottron, H.: Zur Kenntnis des Erysipeloids Rosenbach unter besonderer Berücksichtigung seiner Beziehungen zum Schweinerotlauf, Dermat. Ztschr. **57**: 5 (Oct.) 1929.
10. Klauder, J. V.; Righter, L., and Harkins, M. J.: A Distinctive and Severe Form of Erysipeloid Among Fish Handlers, Arch. Dermat. & Syph. **14**: 662 (Dec.) 1926.
11. Glässer: Die Krankheiten des Schweines 1912, quoted by Arnholz: Zur Pathologie und Therapie des Erysipeloids, Arch. f. klin. Chir. **135**: 736 (April) 1925.
12. Pfeiler, A. H., quoted by Schnürer, J.: Deutsche tierärztl. Wchnschr. **35**: 161 (March 12) 1927.
13. These figures doubtless refer to swine in Germany, where the infection among swine is more prevalent.
14. Prausnitz, C., quoted by Pick, Erwin: Zur Aetiologie und Therapie des Erysipeloids, Dermat. Wchnschr. **79**: 1628 (Dec. 20) 1924.
15. Biewener, H.: Beiträge zur Rotlaufinfektion der Schafe, Deutsche tierärztl. Wchnschr. **35**: 292, 1927.
16. Schipp, C.: Deutsche tierärztl. Wchnschr. **18**: 97, 1910.
17. Poels, J.: Eine für die Praxis brauchbare aktive Immunität erregt durch Serumimpflung vereinigt mit natürlicher Infektion, Folia microbiol. **2**: 225, 1913.

It is known that the virulence of the swine strain of the organism can be modified by passage through animals and also by culture (table 1). Passage through rabbits decreases virulence for swine and passage through pigeons increases virulence for all animals.

In our studies, a 3 year old culture of a swine strain was no longer pathogenic for white mice and pigeons, although the organism is ordinarily pathogenic to these animals. Sabella [18] observed that varying the culture mediums caused marked changes in the morphology of the organism. Stickdorn [19] found that the frequent transfer of a virulent culture or its passage through a series of mice or pigeons changed not only the virulence but the character of the growth in gelatin.

Prolonged passage in dead animal matter apparently changes its virulence and may account for differences in morphology.

Fig. 1.—Site of lesions of "diamond skin" disease on a piece of swine skin. The rhomboidal outline is characteristic and is unique in the morphology of cutaneous lesions both in man and in animals. The anatomic explanation is unknown. From these lesions the bacillus of swine erysipelas was obtained. Study in virulence is shown in table 3.

The manifold adaptability of the bacillus may well explain its pathogenicity for different species of animals. At least in the swine there exists a transition from saprophyte to parasite, and a reversal from parasitism to saprophytism.

CLINICAL FORMS OF INFECTION

Our clinical conception of erysipeloid has changed from a somewhat arbitrary one to an infection that may be systemic, presenting a cutaneous picture of variable severity. The disease could more properly be called the bacillus of swine erysipelas infection in man.

18. Sabella, A.: Involutionsformen des Bacillus erysipelatos suis, Centralbl. f. Bakteriol. **94:** 411, 1925.
19. Stickdorn, W.: Beitrag zur Biologie des Rotlaufbazillus, Centralbl. f. Bakt. I, Orig. **50:** 5, 1909.

The mildness or severity of the infection in man can be usually correlated with the source of the infection and the virulence of the organism. The clinical picture is somewhat comparable to the following three forms of the infection in swine: a mild form ("diamond skin" disease), characterized by slight constitutional symptoms and the presence of sharply circumscribed, quadrangular, bluish red lesion on the skin, as shown in the accompanying illustration; a severe form, characterized by constitutional symptoms of septicemia and the presence of diffuse erythema; a chronic form, particularly characterized by polyarthritis and symptoms referable to what is a distinctive pathologic observation, a vegetative type of endocarditis.

The most frequent form of the infection in man is mild and is that originally described by Rosenbach. With this form, however, mild constitutional symptoms may be present. A more severe form of the disease, comparable to that in swine, and the arthritic form have been observed almost exclusively in Germany. Such instances have been reported notably by Rahm,[20] Prausnitz,[21] Lubowski,[22] Axhausen [23] and Nörner.[24]

ERYSIPELOID IN THE UNITED STATES [25]

The Infection in Swine.—According to Dr. John S. Buckley, chief of the pathologic division of the Bureau of Animal Industry, United States Department of Agriculture, the existence of swine erysipelas in this country was definitely demonstrated in 1920. Since that time a considerable number of cases have been found, both acute and chronic. He states that it is not definitely known just what the extent of the disease is in the United States. It is thought, however, that swine erysipelas is not very widespread but is confined more or less to sporadic outbreaks, occurring in a limited number of animals in different sections.

The organism was first demonstrated in swine in the United States in 1885 by Smith [26] and subsequently by Moore,[27] Tenbroeck,[28] Creech,[29] Gitner,[30] Parker [31] and by ourselves. Ward [32] recovered the organism from lesions of polyarthritis in swine. The foregoing reports embrace relatively few instances of the acute septicemic and fatal form of the disease. The latter has never existed in epidemic form; consequently, preventive vaccination of swine is not carried out in the United States.

In our studies of the incidence of the infection among swine in the United States, Dr. D. D. Tierney, veterinary inspector at the abattoirs in Chicago, estimated an incidence considerably less than 1 per cent of

20. Rahm, H.: Der Schweinerotlauf beim Menschen, Beitr. z. klin. Chir. **115:** 664, 1919.
21. Prausnitz, C.: Bakteriologische Untersuchungen über Schweine rotlauf beim Menschen, Centralbl. f. Bakt. **85:** 362, 1921.
22. Lubowski, R.: Befund von Schweinerotlaufbazillen im Stuhle eines ikterischen Kindes, Deutsche med. Wchnschr. **27:** 116, 1901.
23. Axhausen, G.: Zur Diagnostik der Fingergelenkserkrankungen, Klin. Wchnschr. **2:** 2197, 1923.
24. Nörner: Rotlauferkrankung beim Menschen, Deutsche tierärztl. Wchnschr. **35:** 519, 1927.
25. It can be inferred from Vallejo's report (Mem. y. Rev. Soc. Cient. Antonio Alzate **38:** 277, 1919) that swine erysipelas exists to a considerable extent in Mexico. Dr. George Hilton, veterinary director general of Canada, informs us that his department has no official statistics of the disease in swine in Canada.
26. Smith, T.: U. S. Dept. Agric., Bureau Animal Industry, 2d Ann. Report, 1886, p. 196.
27. Moore, V. A.: Compend. Med. & Vet. Arch. **8:** 333, 1892.
28. Tenbroeck: Studies on Bacillus Murisepticus or the Rotlauf Bacillus, Isolated from Swine in the United States, J. of Exper. Med. **32:** 331 (Sept.) 1920.
29. Creech, G. T.: The Bacillus of Swine Erysipelas, Isolated from Urticarial Lesions of Swine in the United States, J. Am. Vet. M. A. **59:** 131, 1921.
30. Gitner, L. T.: A Fatal Disease of Young Pigs Apparently Caused by the Bacillus of Swine Erysipelas, J. Am. Vet. M. A. **61:** 540, 1922.
31. Parker, J. W.: Porcine Erysipelas, J. Am. Vet. M. A. **64:** 451, 1924.
32. Ward, A. R.: The Etiology of Polyarthritis in Swine, J. Am. Vet. M. A. **61:** 155, 1922.

"diamond skin" disease among the thousands of swine annually slaughtered in Chicago. He informed us that the acute form of the disease is but rarely seen. Studies of the virulence of the organism recovered from lesions of "diamond skin" disease, as reported by Tenbroeck,[28] Creech [29] and ourselves,[10] showed a relatively low virulence (table 3).

It would appear that the infection among swine in the United States is much less widespread and much less virulent than that existing among swine in Germany.[33]

The Infection in Man.—The following statements summarize our study of erysipeloid among commercial fishermen working in fish pounds along the northern New Jersey seacoast; studies conducted at the abattoirs in Chicago and elsewhere; questioning our dermatologic confrères, and communications with veterinarians; physicians engaged in industrial medicine, and insurance companies insuring employees under the workmen's compensation act.

Erysipeloid is rarely seen in dermatologic clinics. The infection is apparently more frequently obtained from contact with fish and crustacea and from sources other than contact with the flesh of swine. We have previously reported [10] studies of erysipeloid among commercial fishermen handling live fish, particularly those that are slimy and spiny. The disease among commercial fishermen is more prevalent in hot weather and is frequently a severe form of erysipeloid with lymphangitis and with enlargement and tenderness of the regional lymph nodes, at times associated with mild constitutional symptoms. The clinical picture is comparable

Fig. 2.—Erysipeloid of two weeks' duration: The first two fingers were swollen and bluish red and there was a patch of the same color at the base of these fingers. Throbbing pain and stiffness of the involved fingers prevented the use of the hand. Onset occurred two days after hunting a coon. The hand was bruised on a rock and then the patient carried home the live coon by wrapping its tail around the two involved fingers. Ten cc. of immune serum, injected intramuscularly, produced rapid disappearance of all symptoms. There was no relapse. Urticaria occurred the sixth day after injection.

to what has been reported in the German medical and veterinary literature as swine erysipelas in man. From these cases we isolated a virulent strain of bacillus of swine erysipelas (to be discussed later, and shown in table 1). In these patients no arthritic symptoms were observed and no acute fatal instances of the infection. The disease appears to be widespread among commercial fishermen handling live fish along the entire Atlantic seacoast and is an important disease of the fishing industry. We are not acquainted with any report in

Fig. 3.—Erysipeloid of two weeks' duration in an employee in an abattoir who stuck the index finger with a hog bone. There was bluish red erythema of the index finger extending to the dorsum of the hand, producing a sharply marginated border. Pain and stiffness of the finger caused incapacitation. The white area in the illustration represents maceration of the epidermis resulting from a wet dressing. A total of 8 cc. of immune serum was infiltrated in and around the involved area; two days later, 5 cc. was similarly injected. The involved area was normal five days after the first injection. The only reaction was local swelling. There was no relapse.

the literature on erysipeloid among commercial fishermen which concerns this severe form.

The infection seems to be much less common and also milder among handlers of fish shipped to market, both wholesale and retail. This can doubtless be attributed to less intimate contact, to the fact that the fish have been cleansed, washed and packed in ice, and to a change in the virulence of the organism through changed environment.

The infection is rare among veterinarians, particularly those inspecting swine in slaughter houses. The infection is apparently not common in the meat packing industry. Dr. W. H. Lipman, medical director of Swift and Company, Chicago, informed us that among about 6,000 employes handling the flesh of swine in the large abattoirs in Chicago, he would estimate the occurrence of, say 20 cases yearly of erysipeloid, of the mild form. Dr. G. S. Gilpin of the same company in Cleveland estimates a higher incidence of at least 20 cases yearly among 1,000 employees.

The mild form of the disease exists among employees in the canning industry, canning fish and other food of animal origin.

We have observed cases of infection apparently from the following unusual sources: injury of the hand on a stone in a dried creek; from carrying an opossum by the tail wrapped around the fingers; from skinning a rabbit, and other contact with rabbits by rabbit breeders; from handling recently thawed fish by an attendant in a zoological garden; from performing an autopsy on a dead animal in a zoological garden; from a sting of a jelly fish; from handling dog fish (*Squalus acanthias*) which apparently had lain on the beach for a long time and had dried thoroughly in the sun; from

33. It is thought by some that the apparent lack of resistance of swine on the European continent may possibly be due to differences in feeding.

a prick of a spine of a dried stuffed fish which was mounted and used as an ornament.

The disease is an important disease of industry in the United States among employees of the aforementioned industries, not by reason of the severity of the infection but in view of the involvement of the hands, the weeks of incapacitation and the inadequacy of local treatment. Most of the industrial physicians with whom we communicated stressed the two latter features.

From our studies, human infection in the United States is apparently much less widespread and less severe, excepting the infection in fishermen handling live fish, than that existing in Germany, as evidenced from the reports in the literature. From these reports it appears that infection in Germany is frequently due to contact with the flesh of swine. Of 233 cases reported by Bierbaum and Gottron,[9] however, contact with fish was the most frequent source of the infection. These investigators mentioned the increase of the infection since 1920 and attributed this to a greater importation of American bacon and lard, which may have been contaminated in transit.

Laboratory Studies.—The organism isolated from the infection among fishermen handling live fish was highly virulent and was consistent with the clinical picture, as shown in table 1. A forty-eight hour pure culture in hormone broth killed pigeons in four days, following intramuscular injections of 0.001 and 0.0002 cc., and white mice in from two to four days, following subcutaneous injections of amounts varying from 0.5 to

Fig. 4.—Erysipeloid of two days' duration in an employee in an abattoir, who pricked the palm with a hog bone. A purplish red erythema appeared two days later, with involvement of the hyperthenar eminence and part of the palm. A total of 10 cc. of immune serum was infiltrated in and around the lesion. There was rapid disappearance of all symptoms; the area was normal the fourth day after injection. The only reaction was local swelling. There was no relapse.

0.0001 cc. After passage of the organism on culture for seven weeks, the virulence was decreased for white mice from 0.0001 cc. to 0.01 cc.

A strain isolated from a mild form of the infection in a patient infected from skinning a rabbit was much less virulent, as shown in table 2. A forty-eight hour culture killed white mice in five days following subcutaneous injections of 0.01 cc. The animals survived injections of smaller amounts.

Three strains isolated from different lesions of "diamond skin" disease in different swine varied in virulence, as determined by subcutaneous injection of a forty-eight hour culture in white mice: (*a*) 0.01 cc. killed in eight days (table 3); (*b*) 0.01 cc. killed in nine days; (*c*) 0.001 cc. killed in five days.

Not all organisms obtained from different sources could be differentiated morphologically or culturally.

Fig. 5.—Severe erysipeloid appearing a few days after pricking the finger with a fish head. A purplish red erythema together with hemorrhagic vesicles appeared at the site of injury. The erythema gradually spread, subsiding, then reappearing in previously uninvolved areas, forming sharply marginated serpiginous lesions. This continued for five months, involving all the forearm and the lower part of the arm. There was stiffness of the fingers and wrists, with dull aching pain in these parts and the elbow. Different local treatment was of no avail. Repeated injections with increasing amounts of the serum caused amelioration but did not prevent relapses. A culture taken from a piece of skin yielded the bacillus of swine erysipelas.

They were all agglutinated by positive swine erysipelas serum and gave positive complement-fixation reactions with the same serum.

Studies of virulence of organisms isolated from swine in the United States by Smith,[26] Tenbroeck [28] and Gitner [30] varied in virulence and was comparable to the virulence of the organisms obtained by us from "diamond skin" disease in swine as herein reported.

Dr. H. S. Davis of the United States Bureau of Fisheries informs us that an infection of fish with the bacillus of swine erysipelas is unknown. It appears that the organism is a saprophyte, particularly on the slime of fish, and that refuse thrown into the water and other decaying matter is the source of contamination. Apparently the change in environment increases virulence.

TREATMENT

The majority of the mild cases of erysipeloid run a self-limited course of about three weeks. In some patients, after a short period of apparent cure, the eruption reappears either at the same area or, more likely, at an adjacent previously uninvolved area. In this way the disease may continue for many weeks, indeed, months, as in the case illustrated in figure 5.

The disease does not appear to be greatly helped nor its course shortened by local treatment with conventional applications, such as boric acid compresses, saturated solution of magnesium sulphate, tincture of iodine, or sulphonated bitumen.

The importance of rest is stressed by many writers. Ultraviolet ray and foreign protein therapy have been recommended and are alleged to be of some value in treatment. We can appropriately quote the experience of others from information received in the foregoing canvas: "The condition seems to be more or less limited and responds but poorly to local treatment." "Patients lose two or three weeks in spite of all that one can do." "About the only effective treatment (one questions if it really shortens the course of the disease) is rest and heat in the form of wet packs."

From reports in the German literature, the intramuscular injection of the serum of swine erysipelas, from 1 to 2 cc. for each 10 Kg. of body weight, is effective in treating the mild and severe forms of erysipeloid. This serum is universally employed in Germany in conjunction with injection of cultures of the organism in immunizing swine against the infection —a combination of active and passive immunization.

Callomon [34] summarized the status of the use of the serum in treatment of the human form of the infection. He particularly recommends its use in chronic relapsing cases, patients with arthritis, acute cases such as are seen in veterinarians who are accidentally infected with virulent cultures, and as a prophylactic injection in these patients soon after the accidental inoculation. He employs from 10 to 20 cc. of the serum, injected subcutaneously in the arm of the affected hand. In the milder forms of the disease there is frequently a rapid disappearance of the subjective and objective symptoms. In some patients, however, relapses occurred. The employment of the serum yielded far better results than in those patients not so treated.

One disadvantage of the serum is the occurrence of serum sickness. Callomon points out that the incidence of this untoward reaction varies considerably with the different brands of the serum available in Germany for human use. On account of its occurrence, some writers prefer not to use the serum in the mild and less complicated forms of the infection.

Serum of swine erysipelas has not been available in the United States. From the strains of the organism isolated by us from the infection in fishermen, H. K. Mulford & Co. prepared an immune serum. This serum, in doses of 0.2 cc., protected white mice against a thousand times the fatal dose. We at first employed such serum by injecting in the buttock a single dose of 25 cc. Later, we observed that smaller amounts injected subcutaneously by multiple punctures in and around the lesion were just as effective, if not more so. In this manner, 5 cc. or more, depending on the size and location of the lesion, may suffice to cause a rapid disappearance of the infection. In other patients, a second similar injection a few days later may be necessary.

Soon after the injection there is a local reaction consisting of swelling, and at times pain in the finger joints of the hand injected, tenderness and enlargement of the lymph nodes draining the site of the disease, and urticarial lesions appearing near the site of the injection.

Criteria of the results obtained with serum therapy are seen in figures 2, 3 and 4. In these patients all symptoms of the disease disappeared within about five days after injection. An exception concerned the patient whose forearm is shown in figure 5. In this patient the disease existed by remissions for four months, following pricking the finger on a fish head. The entire forearm and lower part of the arm became involved, with dull aching pain in the elbow, wrist and finger joints. After injection of the serum, the symptoms were considerably improved but subsequently relapsed. Continued injections with larger amounts of the serum produced only temporary relief, with relapse. These relapses, however, became milder and milder.

Although the patient became sensitized to the serum as manifested by positive reaction to an intracutaneous injection, its use was continued by administering it according to the method of desensitization. No untoward reaction resulted. Injection of the serum was finally supplemented by injection of a vaccine-filtrate (suspension of heat killed bacillus of swine erysipelas in a Berkefeld filtrate of a broth culture of the same organism) prepared from different cultures. This vaccine-filtrate is now being used. There is no recorded study of the value of vaccines or filtrates in the treatment of erysipeloid. It is possible that this form of therapy may furnish additional aid.

In our series of patients treated with serum, occurrence of serum sickness has not been severe nor the incidence sufficiently great to constitute an obstacle to its employment.

We are conducting studies to determine whether a refined product of the serum can be utilized which will eliminate serum sickness and yet exert immunologic action.

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34. Callomon, F.: Pseudoerysipel, Erysipeloid, in Jadassohn, J.: Handbuch der Haut- u. Geschlechtskrankheiten, Berlin, Julius Springer 9, part 1, 1929.

DEMENTIA PRAECOX

A SIMPLIFIED FORMULATION *

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Approximately one fifth of all the hospital beds in the United States are required for victims of the single disorder dementia praecox. In addition, there are many patients not under custody. Dementia praecox is a disorder that characteristically takes onset in the early prime of life and persists for many years. In terms of total economic loss it costs approximately a million dollars a day in the United States alone. Its cost in human misery cannot be calculated.

The disorder has been recognized in its main features from the dawn of medical history. Why, then, in this age of medical advancement, has understanding of its causation and treatment so wofully lagged? One important reason, no doubt, is sheer fatalism, an attitude thoroughly unworthy of twentieth century medicine. More important, and to a considerable extent growing out of this fatalistic attitude, is a large measure of simple neglect. So heavy is the burden of mere custodial care that only the scantiest resources have been made available for research in this field. Practically, an important reason for failure of progress is the lack of a formulation comprehensible to any but trained psychiatrists. To the ordinary practicing physician, to the families of the patients, and to the nurses and attendants in psychiatric hospitals, in whose hands the welfare of the patients mostly rests, the nature of the disorder is largely a mystery. For such persons, recourse to the modern psychiatric literature results only in confusion worse confounded. To one beset with an intellectual necessity of trying to see "the problem as a whole," only a highly complex formulation can be satisfactory, but on most people dealing with dementia praecox no such necessity rests.

Had research in immunity been delayed until all the chemical and physiochemical factors on which it depends been ascertained, or had research for the past generation been based on a formulation inclusive of all the intricacies of colloidal chemistry, even as then known, the cemetery population of 1931 would have been materially larger than is the case. Practically, much was gained by the adoption of the Ehrlich side-chain theory,

* From the Worcester State Hospital.

a theory that not only ignored many confusing physicochemical details but even postulated numerous picturesque entities that had only an allegorical relation to reality. It is believed that the genius of an Ehrlich is not needed to formulate a practical, working conception of dementia praecox that is materially superior in everyday use to the varieties current in the technical psychiatric literature.

The victim of dementia praecox is many things. He is a primate, a complex physical machine, a man with peculiar thinking processes, a man of sensitive disposition, probably a man working under a toxic handicap, often, if not always, a man with defective endocrine and other organic functions, possibly a man with fixed "libido," and what not. An attempt to deal constructively with such a complex of relationships "as a whole" is a precarious undertaking. Humanity will be fortunate if this can be done successfully a thousand years from now. At whatever cost to his philosophic sensibilities, one attempting to conduct a profitable research on dementia praecox is constrained to seek a pragmatic formulation—one that will serve to direct effort toward productive ends and offer some hope that the results will fit nicely into some future solution of the "problem as a whole."

Bleuler's profoundly interpretive term "schizophrenia" can be rendered from the Greek into everyday English without too great distortion by the simple term "dream state." This term has the advantage of a rich connotation that is meaningful in the consideration of dementia praecox. That the term is practically impossible to define is only a seeming disadvantage, as compared with the more pretentious Greek. All the uncertainties easily recognized in "dream state" are inherently implicit in "schizophrenia." As a matter of fact, a dream state, being a special phase of consciousness, is not susceptible of definition in more fundamental terms of human experience. The term can be enriched, however, by the content of all that is valid in the extensive literature on dreams—all of which would have to be epitomized in an entirely adequate definition.

As one sees this dream state in a mental hospital, the patient shows all gradations from deep submergence, with seeming complete obliviousness to his surroundings, to manifestations that are not greatly unlike the preoccupation of a professor. For my present thesis, a discussion of the varying content of symbolic thought and action is unnecessary. These are familiar features in ordinary dream states.

Of the various conceptions of the essential nature of the psychosis, that of Boisen[1] affords an idea that seems best adapted to serve as a foundation for therapy. Boisen points out that the fundamental purpose of every one—both sane and insane—is to achieve "self-realization," to maintain the highest possible degree of self-esteem. From this point of view, dementia praecox is due primarily to an intolerable sense of personal failure arising out of a loss of self-respect, with a sense of isolation[2] and feeling of instability of the cosmos. The loss of self-respect results from a failure of the individual to come within a satisfactory reach of meeting his own personal standards. To this single conception can be related all that we know at present regarding the successful treatment of the psychosis. Restoration of self-respect is a comprehensible goal to which effort can be practically directed and success in attaining this goal carries with it the correction of the sense of isolation and cosmic instability.

Concisely formulated, then, it can be said that dementia praecox is a defensive reaction in a sensitive human being to a feeling of personal failure. It results from inability to meet one's own personal standards. It is a persistent dream state. It is characteristically accompanied by a sense of isolation. It may take the form of panic, of despairing acceptance (loss of hope), of evasiveness, with projection and grandiose delusions, or of simple acceptance of inferiority. Fundamental to the psychosis is an intolerable loss of self-respect.

Since the individual is unable to meet his own standards, it follows either that the standards are wrong or that he is unable to bring to bear a sufficient degree of energy or wisdom to deal satisfactorily with the situation in which he finds himself. One must consider, however, in addition, such reinforcement of his self-disrespect as he receives from the attitude of others.

In certain cases, much can be done by reeducation of the patient—providing him with a more practical philosophy of life—rectifying his standards. The details of how this is best to be accomplished differ greatly from one patient to another. Further development of the topic would amount to a dissertation on psychotherapy that is beyond the scope of this article.

So far as optimal standards cannot be adapted to the patient, he must be adapted to his own standards. Such adaptation essentially means to provide him with more available energy or to induce him to make a better use of such energy as he has. Either procedure, however, should be carried out with a conscious realization that the fundamental purpose is to bring the patient's conception of himself within tolerable distance of his conception of what he should be—in short, to enhance his self-respect. If the limiting factor is organic, whether "organ inferiority"—functional or morphologic—or, from another aspect, obscure intoxication, the utmost in diagnostic acumen should be brought to bear to detect the existence of such factors, and then the best practicable therapeutic measures applied to correct the existing defects. A consideration of the difficulties of carrying out these procedures will point the way to many needed researches on the organic side of the psychosis.

One school of psychiatrists would lay special emphasis on the fact that many patients expend a great deal of nervous energy unprofitably in "inner conflicts." To whatever extent such conflicts can be resolved by psychotherapy, the patient will have available more energy for profitable expenditure. The psychoanalyst would ascribe the difficulty to "fixation of the libido" at childish or infantile levels and would insist on a special technic for its "liberation." The applicability of technical psychoanalysis to the treatment of schizophrenia, however, remains to be determined. As in case of all other types of therapeutic investigation, results must be judged on a quantitative basis, with due regard to adequacy of control. In any case, the net result of a successful "analysis" would be to render available to the patient increased energy for more profitable expenditure.

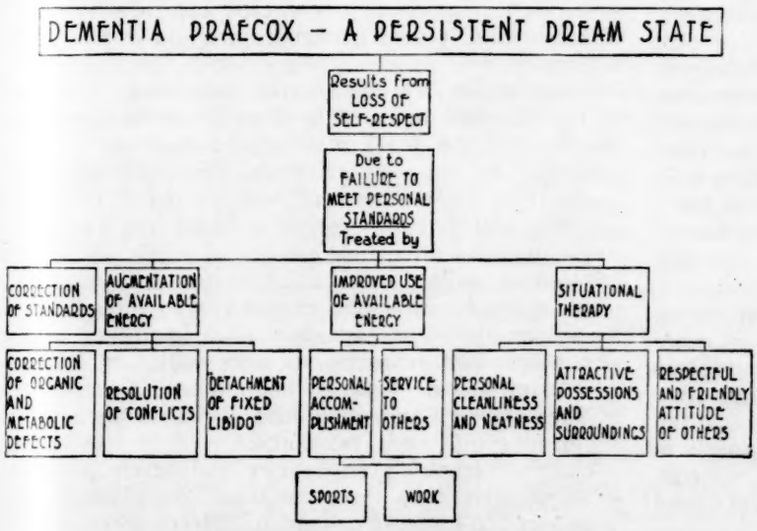
Without waiting for success in the correction of the patient's standards or the augmentation of his available energy, much can be done by inducing him to improve on the technic of expending such energy as he does

1. Boisen, A. T.: Am. J. Psychiat. 5: 531 (April) 1926.
2. Boisen (personal communication to the author) regards the sense of isolation as the most significant feature.

have available—always regarding the restoration of self-respect as the primary object of therapy. Without digressions into the field of philosophy, or a discussion of instincts and emotions, one can draw on common knowledge that a man's self-esteem is raised by accomplishments that he himself respects. These may be in the field equally well of sports or of work. The essential fact is that his energy should be expended in accomplishments that the patient respects. This consideration should determine in a given case whether occupational or industrial therapy should be utilized.

The fact that the desirability of service to others has been greatly emphasized by religious and moral teachers should not blind one to the fact that such service characteristically results in a warm feeling of self-approbation. George Eliot's "Silas Marner" is a convincing tract on the psychotherapeutic value of service. The helpful possibilities here should not be overlooked in the practical treatment of dementia praecox.

Finally, a group of helpful procedures can be treated together as "situational therapy." In general, these procedures are effective primarily as they serve by


DEMENTIA PRAECOX – A PERSISTENT DREAM STATE
Results from LOSS OF SELF-RESPECT
Due to FAILURE TO MEET PERSONAL STANDARDS Treated by
CORRECTION OF STANDARDS
AUGMENTATION OF AVAILABLE ENERGY
IMPROVED USE OF AVAILABLE ENERGY
SITUATIONAL THERAPY
CORRECTION OF ORGANIC AND METABOLIC DEFECTS
RESOLUTION OF CONFLICTS
DETACHMENT OF FIXED LIBIDO
PERSONAL ACCOMPLISHMENT
SERVICE TO OTHERS
PERSONAL CLEANLINESS AND NEATNESS
ATTRACTIVE POSSESSIONS AND SURROUNDINGS
RESPECTFUL AND FRIENDLY ATTITUDE OF OTHERS
SPORTS
WORK

Formulation of dementia praecox.

direct or indirect suggestion to enhance the patient's self-esteem. A constant, friendly pressure should be kept on careless patients to maintain personal cleanliness and neatness. Pride of possession may be utilized to some extent by providing the patient with the most attractive clothing and other personal belongings that the given situation permits. The troublesome problem of protecting the patient from the depredations of his fellows is a limitation on this technic. His living quarters should be made as attractive as possible. Finally, it should be impressed constantly on all who come in contact with the patients that a suitably respectful and friendly attitude may be of determining importance in their mental welfare. Explicit approbation should be freely utilized to reinforce the patient's self-esteem. As Sullivan has emphasized, sympathy and friendliness should be the primary determining characteristics in considering the suitability of nurses and attendants for service in psychiatric hospitals.

The accompanying diagram represents an attempt to set forth graphically the essential features of the foregoing discussion. It is offered as an endeavor to make an adequate working formulation by exclusion. It is axiomatic in the fields of physical and biologic sciences that the simplest means to a given end is antecedently the most promising. An attempt to deal individually with all the numerous and varying aberrations of a schizophrenic patient would be a hopelessly complex undertaking, but any one with decent human sympathy and tact can do much to build up the self-respect of the patient. As his self-respect increases, the psychosis improves.

The application of the foregoing plan would vary somewhat with the situation in which the patient is found. One attempt at application is illustrated in a special set of directions issued and expounded to nurses and attendants in our research service:

TO THE NURSES AND ATTENDANTS

(*a*) Dementia praecox is an intermittently or continuously persisting dream state. To cure the patient, he must be brought back to reality. Get him interested enough to stop dreaming.

(*b*) The psychosis results from an intolerable feeling of loss of self-respect. This is due to a feeling of failure of the individual to meet his own personal standards.

Build up his self-respect.

Self-respect in the patients can be increased:

1. By correction of personal standards, if these are wrong.
2. By encouraging personal neatness and cleanliness.
3. By treating each patient as respectfully as you would want to be treated if you were in his place and he in yours. Draw a skilful line between friendliness and offensive familiarity. Consider the patient's background. Remember he is insane because he is sensitive.
4. By encouraging the patient to keep his personal quarters as attractive as possible.
5. By respecting his personal belongings and protecting him in the use of them.
6. By encouraging the patient to do things that he himself will respect.
7. By encouraging him to be helpful to others.
8. By giving the patient as much responsibility as he can and will carry without being disturbed or fatigued.
9. By building up good physical health.

(*c*) Dementia praecox is characteristically accompanied by a feeling of isolation. Draw the patient out of himself. Encourage him to take a self-respecting part in community life. Teach him that the best way to have friends is to be a friend—especially to those who need friendship.

(*d*) The psychosis serves ordinarily as a protective reaction. Do not expect the patient to give up his protection as long as he needs it.

SUMMARY

The current formulations of the nature of dementia praecox are too complex to afford a suitably comprehensible basis for therapy. A simplified formulation is offered that emphasizes the practical aspects of treatment. The psychosis is regarded as a persistent dream state. It is a protective reaction in a sensitive subject to a sense of personal failure to meet his own standards. The consequent loss of self-respect renders existence in the world of reality intolerable. Therapeutic efforts should be directed to restoring his self-respect, thus eliminating the necessity for the protective reaction. This can best be achieved by correction of faulty standards, by augmenting the patient's store of available energy, by teaching him an improved technic for utilizing existing energy, and by various types of situational therapy. The formulation is susceptible of intelligible, detailed presentation to those not conversant with technical psychiatry.

ISOLATION OF BRUCELLA ABORTUS FROM A HUMAN FETUS*

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The pathogenicity of certain strains of *Brucella abortus* for man has been demonstrated by the comparatively large number of cases of undulant fever reported in current medical literature. Because abortion is the chief manifestation of the disease in those species of domestic animals that are most susceptible to this infection, it has been suspected for a long time that *Brucella abortus* may be responsible for certain cases of abortion in women. Its habitual occurrence in the reproductive systems of both sexes of domestic animals, especially in placental tissue, must be considered as a gonotropic character of the organism, although few data are available to prove its predilection for the genital tract of man.

In the human family *Brucella abortus* has been isolated from the blood, urine, stools, joints, tonsils, ovaries, and once each from an oviduct and from an epididymis as well as from practically all the parenchymatous tissues at autopsy. Bacteriologic examinations of the tissues of infected domesticated and experimental animals likewise show the organism in the various tissues of the body. With the exception of certain cells of the reproductive system that we shall discuss later, it is very difficult to demonstrate the organism in tissues by staining methods, on account of its small size and the comparatively small numbers present.

The cause of a large percentage of abortions in women living in rural districts where abortion in cattle is prevalent has not been determined, although reports of miscarriages among farmers' wives at a time when infectious abortion existed in the herd were often obtained. The suitable collection of such specimens in the country for bacteriologic examination is difficult, although an abundance of such material may be obtained from hospitals in the larger cities.

HISTORY

In 1913 Larson and Sedgwick [1] reported that the serums from women who abort frequently show complement fixation when abortus is used as an antigen and that this occurs more often than does the Wassermann reaction when the serum from such a group of patients is examined. In a later report, Sedgwick and Larson [2] said: "Dr. A. W. Robertson of Litchfield, Minnesota, reported that two women had aborted during the time that there was an epidemic of abortion among cattle on their farms. He stated that he was unable to find any other cause for the expulsion of the premature fetus."

In 1917 de Forest [3] published a report on eleven abortions in women, the history of which suggested that the source of the infection causing the interruption of the pregnancy came from cattle that were infected with *Brucella abortus*. In most of the cases these women had lived on farms at a time when the cattle were suffering from infectious abortion or had spent their vacations on farms where the disease existed.

Since it was evident from our own studies as well as from those of some of the earlier investigators that *Brucella abortus* was pathogenic for man, we began in 1926 a bacteriologic study of human fetuses and placentas from women who had aborted. By reason of laboratory facilities offered us by Dr. Douglas Symmers, director of the pathologic laboratories of Bellevue Hospital, New York, and of an opportunity to collect such specimens as were desired from the division of obstetrics, bacteriologic examinations were made on twenty-eight fetuses and on thirty-four placentas.[4] In fourteen instances the placenta and fetus came from the same patient, making a total of forty-eight abortions from which material has been examined. The ages of the fetuses varied from 30 days to 7 months, the majority occurring between the second and fifth months of pregnancy. Only specimens from cases of spontaneous abortion and those whose Wassermann test was negative were examined. Possible mechanical interruption of pregnancy was excluded as far as possible. The tissues were collected carefully to avoid contamination, placed in sterile jars and taken to the laboratory.

Cultures for *Brucella abortus* were made from bits of the placental tissue as well as from the organs of the fetus if the latter was large enough to make it possible. In the very early abortions, cultures were made from an extract that was prepared from the placenta and fetus by grinding them together in a sterile mortar with a small amount of sterile physiologic solution of sodium chloride. One or two guinea-pigs were injected with saline extracts from these tissues. These were killed and autopsies done from four to five weeks later and examinations were made for *Brucella abortus* infection. The blood serum from twenty-eight of these women was examined for *Brucella abortus* agglutinins with negative results.

Cultures from eleven fetuses and seven placentas were negative. In three instances the placenta and fetus were from the same patient. Streptococci, staphylococci, diphtheroids or gram-negative bacilli, many of which were members of the colon-aerogenes group, were recovered from the remainder. Some of the organisms that were isolated undoubtedly came from the genital canal, because in some instances the products of conception lay in the vagina when the patient entered the hospital.

No evidence of *Brucella abortus* infection was obtained by animal inoculation or from the cultures, except in one case, which had the following history:

Mrs. H. R., American, housewife, aged 27 and married two years, was admitted to the hospital May 18, 1927. Her mother and father were alive and well; she had one sister and three brothers alive and well. She had one normal child, born June 11, 1926. The husband was healthy.

During childhood she had measles but had had no illness or operation since. Menstruation began at 16, recurring every thirty days; she used from three to four napkins a day before marriage, and from two to three a day after marriage; pain in the back preceded each period, but there was no marked dysmenorrhea and no leukorrhea. During the first gestation period she had usual morning sickness; parturition was normal after thirty-six hours. Progress was retarded by unruptured membranes.

The patient had a normal period, March 8; the next period was late, beginning April 16, and lasting two weeks. The flow

* From the Department of Comparative Pathology and Bacteriology, Cornell University.
* We are indebted to the Metropolitan Life Insurance Company for the financial support of our studies on undulant fever.

1. Larson, W. P., and Sedgwick, J. P.: The Complement Fixation Reaction of the Blood of Children and Infants, Using the Bacillus Abortus as an Antigen, Am. J. Dis. Child. **6**: 326 (Nov.) 1913.
2. Sedgwick, J. P., and Larson, W. P.: Further Studies on the Epidemic Abortion Reactions in Children, Am. J. Dis. Child. **10**: 197 (Sept.) 1915.
3. De Forest, H. P.: Am. J. Obst. **76**: 221 (Aug.) 1917.
4. We are indebted to Dr. Norman S. Moore for collecting these specimens for examination.

of blood was greater than normal; there was no pain but a number of clots of blood were passed. Morning vomiting occurred. Slight bleeding continued until May 11, when the flow of blood began again and persisted until admission to the hospital. Clots had been passed. There was no pain, but the patient felt very weak from the loss of blood. There was no intravaginal manipulation by a physician at home.

The physical examination was negative except for a loud, blowing, systolic murmur transmitted to the left axilla and also up the left border of the sternum. The abdomen had a good parous wall; no masses were felt. In the vagina there was a bloody clot apparently containing products of conception. The cervix was lacerated. The uterus was somewhat enlarged and there was a retroversion of 3 degrees. A diagnosis of incomplete abortion was made.

The patient was given the routine palliative treatment. She remained in the hospital for four days, during which time she convalesced so satisfactorily that she was discharged. During the first two days in the hospital her maximum temperature was 101 F. However, it returned to normal on the third day and remained so during the rest of the time the patient was in hospital.

Unfortunately, we failed to get a sample of blood from this patient at the time she was in the hospital. When we had identified the organism that was isolated from this fetus and placenta as *Brucella abortus*, we could not locate the patient to obtain a sample of blood or more information concerning the possible source of this infection.

The blood clot in the vagina containing the products of conception was collected, placed in a sterile pint jar, and then taken to the laboratory, where cultures were made, as described. An examination of the blood clot revealed a fetus 15 mm. long embedded in placental tissue.

The abdominal wall of the fetus was seared with a hot spatula and cultures from bits of the viscera were made on serum agar. The cultures were incubated in jars containing 10 per cent carbon dioxide. In five days there were observed on the agar slants colonies that were typical of *Brucella abortus*. An antigen was made from subcultures and set up with a known abortus antiserum which completely agglutinated the suspension. An agglutinin absorption test proved this strain to be *Brucella abortus*. An extract of the entire fetus and placenta was made by grinding them together in a sterile mortar with 10 cc. of physiologic solution of sodium chloride after the cultures had been taken. Two guinea-pigs were injected subcutaneously with 1 cc. of the extract. One guinea-pig died four days after its injection from a septicemia and *Bacterium coli* was isolated from the heart's blood. Autopsy was done on the other guinea-pig eighty days after injection and showed general emaciation, the spleen enlarged twice, many small necrotic foci in the liver, the lymph nodes swollen, the genital tract, epididymides and testes atrophied, the joints and other tissues normal. Cultures from the liver and spleen showed *Brucella abortus*. The blood serum had a titer of 1:1,215 when set up with an abortus antigen prepared from culture 80. Subcultures of the organism isolated were submitted to McAlpine and Plastridge [5] who, because of its inability to utilize dextrose and because of its growth behavior on mediums containing methyl violet, basic fuchsin and thionine, have classed this as a bovine strain.

Since our isolation of *Brucella abortus* from a human fetus in 1927, other reports of the infection in the genital tract of women have been recorded in the literature.

Because of the close biologic relationship between *Brucella abortus* and *Brucella melitensis* as discovered and reported by Evans [6] in 1918, one cannot describe the pathology of the two organisms separately. The information accumulated on Malta fever and *Brucella melitensis* by the early investigators has been of great value to us in America, who have been concerned more with a study of undulant fever and *Brucella abortus*. In general it may be stated that *Brucella abortus* and *Brucella melitensis* cause similar symptoms and lesions in man and experimental animals. Each shows a preference for the reproductive systems of various species of animals, chiefly those of the cow and of the goat. This, no doubt, is due to the fact that through many generations different strains have adapted themselves to the species of animal that was available as a host.

Eyre [7] has reported amenorrhea as well as abortion to occur in patients suffering from Malta fever. Kristensen [8] of Denmark has reported the isolation of a pure culture of Bang's bacillus from a suppurative ovarian cyst removed from a woman. He also observed that women suffering from undulant fever usually had an amenorrhea and that none of the patients were pregnant at the time they were showing symptoms of the disease. In a more recent report on this disease, Kristensen [9] states that four pregnant women, suffering from undulant fever, aborted at four, five, six and seven months, respectively. *Brucella abortus* was recovered in culture from the placental exudate of the seven months' abortion, but he failed to obtain it from the fetus. He was unable to secure bacteriologic examinations of the fetuses and placentas in the other three cases. In one of our own cases of undulant fever of the intermittent type that has been carefully studied, menstruation was coincident with the onset of each febrile period, which were periods approximately ten days apart. This may have been due to a general dyscrasia resulting from the disease.

Amoss and Poston [10] have reported the isolation of a member of the genus *Brucella* from the right ovary and tube surgically removed from a patient who was convalescing from undulant fever of long duration. In a second case they have reported the isolation of the same organism from hemorrhagic cysts in an ovary. In a personal communication they state that they failed repeatedly to isolate *Brucella abortus* from intrauterine cultures or from the menstrual fluid.

Occasionally *Brucella abortus* has been recovered in culture or by guinea-pig injection from the ovary of domestic animals as well as from laboratory experimental animals. It may be the cause of ovaritis in cattle, which is a very common disease following abortion, but at present there is not much evidence to prove this point. Huddleson and Emmel [11] have recently described a chronic ovaritis in fowls naturally and experimentally infected with *Brucella abortus*. They state: "The large ova are usually first to show the evidence of degeneration, although the smaller ones degenerate more rapidly. The ovary is always nonfunctional in the more advanced stages of the disease. Many ova are flaccid and are a pale, dirty yellow color."

Cornell and De Young [12] failed to find any serums from 1,015 pregnant women in Chicago that showed definite agglutination of antigens prepared from *Brucella abortus* and from *Brucella melitensis*. However, they observed five serums in the group that caused slight agglutination of these antigens. Only one of the twenty-three serums that they examined from aborting women was positive to the agglutination test in a

5. McAlpine, J. G., and Plastridge, W. N.: Personal communication to the authors.
6. Evans, A. C.: J. Infect. Dis. **23**: 354 (Oct.) 1918.
7. Eyre, J. W. H.: Handbuch der pathogenen Mikroorganismen, 1912, p. 438.
8. Kristensen, M.: Ugesk. f. læger **90**: 869 (Sept. 6) 1928.
9. Kristensen, M.: Ann. de méd. **26**: 339 (Nov.) 1929.
10. Amoss, H. L., and Poston, Mary A.: Undulant (Malta) Fever, J. A. M. A. **93**: 170 (July 20) 1929.
11. Huddleson, I. F., and Emmel, M. W.: Tech. Bull. 103, Agric. Exper. Sta., Michigan State College Agric., 1929.
12. Cornell, E. L., and De Young, C. R.: Am. J. Obst. & Gynec. **18**: 840 (Dec.) 1929.

dilution of 1:80. Simpson and Frazier [13] observed several women with negative Wassermann reactions who had aborted repeatedly and gave histories of undiagnosed fevers. Their titers ranged from 1:80 to 1:320 with an abortus antigen.

The manner in which *Brucella abortus* actually causes abortion has been carefully studied by Smith,[14] although Bang [15] originally stated in his first report that he had observed the abortion bacillus to be within cells of the uterine exudate of the cow following abortion. Smith demonstrated a specific localization of *Brucella abortus* in the cells of the chorionic epithelium. He showed that the site of the bovine infection was in the placenta, where the greatest numbers of the organisms occurred. Because of the enormous number of bacteria in the cells of the chorion, it is evident that they multiply within the cells since these cells are not phagocytic. After the cytoplasm of the cells has been completely invaded they are cast off and occur in the inflammatory exudate of the uterochorionic space before abortion or in the uterine exudate after abortion. It is not definitely known how the organism gains entrance to the cells. Smith, who believes that this is only one of the many localizations of *Brucella abortus* in the pregnant female, suggests that the bacteria are carried to the walls of the uterus by the blood stream. Then because of the close contact of the chorion to the mucous membranes of the uterus, the organisms are pressed into the cells.

In the cow the organism soon leaves the uterus after abortion or parturition but usually remains in the mammary gland if it was established there before abortion. In swine and goats a similar occurrence of the *Brucella* infection is noted after abortion, although there may be evidence of infection in the milk before the expulsion of the fetus.

The occurrence of *Brucella abortus* and *Brucella melitensis* in the mammary gland has been studied by several investigators. A difference of opinion exists as to whether the micro-organism causes any pathologic change of the gland tissue. Neri [16] observed in goats a specific mastitis due to *Brucella melitensis*. Cooledge [17] reported that the milk from cows that were discharging *Brucella abortus* contained a greater number of leukocytes than did the milk from cows that were not infected. Tweed [18] studied the same problem and found a slight increase in the cell count of the milk from cows that were carriers of *Brucella abortus* in their udders but failed to find enough to consider that *Brucella abortus* has caused a catarrhal or suppurative condition of the gland. Runnells and Huddleson [19] made a histologic study of the udder of three cows that were discharging *Brucella abortus* in the milk. They reported that they observed evidence indicating that the infection had produced a chronic catarrhal inflammation of the gland tissue. Hallman, Sholl and Delez [20] examined fifteen cases and summarized their observations as follows: "Histological studies of the udder in fifteen cases indicate that *Bacterium abortus* infection in the udder is associated with pathological lesions. The predominating condition in such udders is a subacute or chronic interstitial mastitis. Degeneration and desquamation of the parenchyma and cell exudation into the acini of the gland may be seen to a variable degree, depending upon the acuteness of the process." However, a bacteriologic study of mastitis milk by Carpenter [21] showed only 3 of 100 samples of mastitis milk to contain *Brucella abortus*.

In the human family mammitis is occasionally observed as a symptom of *Brucella abortus* or *Brucella melitensis* infection. Hardy [22] reported that in one case, due to *Brucella abortus*, he observed a bilateral mammitis in a nonlactating woman which subsided spontaneously. We have observed the same symptom in a similar case several months after the acute symptoms of undulant fever had subsided. The inflammation was bilateral but more extensive on the right side than on the left. The gland did not return to normal for two months.

Our present statistics show a slightly higher incidence of undulant fever in human adult males than in females, although in swine and cattle females are much more susceptible than males. This difference in the human family is probably not due to a sex factor but rather to opportunities for exposure to the infection. Orchitis and epididymitis are symptoms often observed in the early course of undulant fever or Malta fever. Luger [23] as well as Lombard and Béguet [24] observed these symptoms in patients suffering from Malta fever. Simpson and Frazier [13] have also reported the isolation of *Brucella abortus* from a purulent exudate from one patient with a draining sinus tract that extended from the globus major of the epididymis through the scrotal wall. They reported two other cases in which seminal vesiculitis, prostatitis, epididymitis and orchitis were present, evidently caused by infection with the Bang organism. These patients had serum titers of from 1:160 to 1:640. Giordano and Sensinich [25] state that orchitis was a persistent and distressing symptom in two of their cases.

The bull, the boar, the buck and the ram are not as susceptible to infection with *Brucella abortus* as are all the females of these species. Most data are available on the bull and the boar. Buck, Creech and Ladson [26] tested the blood serum of 325 adult bulls, and only 13, or 4 per cent, completely agglutinated an abortus antigen when the serum was diluted 1:50 or higher. It can safely be assumed that a similar group of cows would have shown five times as much infection. *Brucella abortus* is seldom isolated from the genital tract of the bull. Reports show that it is recovered only from those animals that have a very high serum titer. This is well evidenced by the fact that cultures were positive from the epididymides and testes, where the infection usually localizes, in only four of the thirteen genital tracts from the bulls positive to the agglutination test. In two instances, Carpenter [27] has recovered *Brucella abortus* by guinea-pig inoculation from semen from bulls positive to the agglutination test. The semen was collected by massaging the seminal vesicles by rectum. He also recovered the infection from the epididymides or seminal vesicles of four infertile bulls.

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26. Buck, J. M.; Creech, G. T., and Ladson, H. H.: J. Agric. Research **17**, 1919.
27. Carpenter, C. M.: Rep. New York Vet. Coll., Cornell Univ., 1926-1927, p. 36.

Gilman [28] made complete bacteriologic examinations of the genital tracts of thirty-six adult bulls and recovered *Brucella abortus* only once from a testis. He also failed to recover it from the genital tracts of male calves. The senior author [29] injected bull calves intravenously as well as intrascrotally with cultures of *Brucella abortus* and failed to recover the organism from the tissues of their reproductive systems when examined from two to ten weeks later. To recapitulate, we may say that *Brucella abortus* does localize in the genital tract of the bull occasionally but that bulls are less susceptible to the infection than are cows. Connaway [30] observed that a steer artificially infected with *Brucella abortus* was a more persistent reactor than a bull. He states that the testicular substance is not necessary for a prolonged retention of *Brucella abortus* infection and that it may be strongly antagonistic to *Brucella abortus*. Hayes and Phipps [31] failed to infect boars with cultures of *Brucella abortus*, while Connaway,[32] as well as Hadley and Beach,[33] demonstrated that sows and gilts were more susceptible to the infection than boars. Although *Brucella melitensis* infection is more prevalent than *Brucella abortus* in goats, the pathogenesis of the former is practically identical with that of the latter. As in the case of cattle and swine, female goats are more susceptible to the infection than are the males. Knuth and du Toit [34] state that *Brucella melitensis* infection in a buck is transmitted rapidly through the female goats by intercourse.

Experimental *Brucella abortus* infection in guinea-pigs presents a most interesting disease. So far as has been determined, the susceptibility of the two sexes is practically the same. However, the germ usually localizes in the epididymides and the testes of the male, causing abscessation of the former with an atrophy of the latter. Quite frequently cultures of *Brucella abortus* with marked virulence produce a purulent seminal vesiculitis. The males become infertile, rarely transmitting the disease to females. Fabyan [35] has described the microscopic pathology of the lesions in the epididymides and testes. He says: "Extensive proliferation of epithelioid cells and infiltration with lymphocytes have been seen within the stroma of the testicle and epididymis: sometimes one element predominating, sometimes the other. Connective tissue may replace the secreting tubules in great part. Occasionally necrotic foci are seen composed of a dense nuclear débris, the tubules containing masses of polynuclear leukocytes."

Meyer, Shaw and Fleischner [36] as well as Jaffe [37] have reported that in their experiments with guinea-pigs infected with *Brucella melitensis* and with *Brucella abortus* it was indicated that these cultures had a distinct affinity for the testes regardless of how the injections were made. In those animals infected for a long time Jaffe observed frequently the testes to be the only organs that showed pathologic changes. He showed that there was a localization of abortus and melitensis in the endothelial cells of the early granuloma specific of these infections.

Although *Brucella abortus* and *Brucella melitensis* cause abortion in pregnant guinea-pigs, lesions are observed very seldom in the ovaries, tubes or uterus. Fabyan [35] noted gross lesions in the uterine muscle of one guinea-pig in the group he examined, and a second showed uterine involvement on microscopic examination of the sections. He failed to find any ovarian lesion. Meyer, Shaw and Fleischner,[36] as well as many other investigators, have also observed uterine abscesses. Boak recently observed an abscess 5 cm. in diameter in the uterine wall of a guinea-pig infected with a porcine strain of *Brucella abortus*. Jaffe [37] injected *Brucella* cultures directly into the ovaries of guinea-pigs, and although they produced a generalized infection with typical lesions in the liver, spleen and lymph nodes, he observed only temporary reactions in the ovary, which consisted of an infiltration of lymphocytes and endothelial cells.

In 1923, while studying salpingitis and ovaritis in a colony of white rats, the senior author isolated *Brucella abortus* from a female that was suffering from pyometra. Fetal bones were present in the purulent exudate, indicating a fetal death with maceration probably due to the infection. According to other observers, infection of male white and gray mice with *Brucella abortus* shows a localization in the epididymides similar to the lesions observed in guinea-pigs.

Fabyan,[35] de Nunno [38] and Smith [14] reported that *Brucella abortus* shows primarily a predilection for the perivascular tissue of the various parenchymatous organs. Nevertheless the frequency with which the infection localizes in the reproductive organs of the male and female regardless of species and mode of infection is very significant. We are still unable to explain the cause of this peculiar attribute of *Brucella abortus* and *Brucella melitensis*. In vitro, we know that the growth of many strains is influenced by the carbon dioxide tension of the atmosphere in which they are incubated and also by the cystine content of the medium, but in vivo many other physical and chemical factors must be considered. It is unquestionable that *Brucella abortus* has a specific affinity for the organs of reproduction because of its localization in the genital system of so many different species of animals. The production of placentitis followed by abortion in various animals with placentas of different types is extraordinary. However, the presence of the infection in the placenta may be due to the great vascularity of this organ and to the greater opportunity afforded for the deposition of bacteria by the large volume of blood that passes through the tissue. If this is true, then any bacteria in the blood stream during any septicemia may produce abortion. Occasionally pregnancies are interrupted in man and in animals during very acute febrile diseases, but this does not occur often. However, very few bacteria occur in the blood stream during an infection with *Brucella abortus*. In cattle in which abortion is the most common sequela of the infection, there is no record of *Brucella abortus* having been isolated from the blood of a naturally infected animal.

The case we have reported was the first instance in which *Brucella abortus* was isolated from a human fetus. We were unable to determine whether the placenta as well as the fetus was infected or to study it histologically; but, basing our opinion on the mode of

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infection in other species of animals, such must have been the case. Although our data are not as complete as we desire, we believe that in this case the abortion was the result of an infection with *Brucella abortus*. The patient did not give a history of undulant fever. As we did not have an opportunity to interview her after she left the hospital, the source of the infection is unexplained.

The reports of the isolation of *Brucella abortus* from the genital tracts of men and women in this country and in Europe indicate that it is not a rare cause of disease in the human reproductive organs. We believe that physicians investigating the pathology of the genito-urinary systems should consider more frequently *Brucella abortus* as a possible etiologic agent of disease in these tissues.

STUDIES OF CALCIUM AND PHOSPHORUS METABOLISM

X a. THE USE OF CALCIUM CHLORIDE TO RELIEVE PERISTALTIC PAIN *

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It has been clearly demonstrated that both lead and calcium are retained in the body in the bones and that the chemical behavior of certain lead and calcium salts in vitro are very similar. These facts suggested to one of us (J. C. A.) that perhaps the same physiologic variations which affect the elimination and excretion of calcium would similarly influence the lead stream. As a result of certain observations on animal and man,[1] it soon became apparent that an analogy existed between the metabolism of lead and of calcium. The administration of various decalcifying agents resulted in an increased excretion of lead. Conversely, forms of therapy promoting calcium retention were found to favor the storage of lead. Consequently in the treatment of lead poisoning a high calcium diet is employed until all the symptoms of intoxication have disappeared. Complete subsidence of symptoms usually occurs within as short a period as twenty-four or forty-eight hours. These results have been interpreted as meaning removal of lead from the blood and storage in the bones following an increased calcium retention.

Because of the foregoing, it was reasonable to assume that any therapy that would hasten calcium retention would result in a more rapid storage of lead and consequently more prompt relief from the severe colic and other symptoms of lead poisoning. It was hoped that this might be accomplished by giving a calcium salt intravenously. Calcium chloride was chosen as the most suitable salt for this purpose because it is the most soluble of the common calcium salts. Furthermore, it contains more calcium per gram.

METHOD OF ADMINISTRATION

A sterile solution of 5 per cent calcium chloride was given intravenously in amounts varying from 5 to 20 cc. To insure the minimum of untoward and unpleasant symptoms, it was always given at the rate of 2 cc. a minute. During the administration of calcium chloride in this manner, the patient complains of an intense feeling of heat over the entire body and burning of the tongue and occasionally is nauseated and vomits. The feeling of heat is probably due to a vasodilatation of the peripheral vessels, for during this time there occurs a drop in the blood pressure (from 10 to 40 mm. of mercury) and a prolonged distinct elevation of the skin temperature (from 1 to 3 degrees C.).[2] If it is injected more rapidly, most patients will suffer from severe nausea and vomiting. Furthermore, rapid administration may result in an acute lowering of the blood pressure and paralysis of the heart and respiration.[3] One must be certain that the needle is well within the vein, for the escape of the solution into the adjacent tissues will cause sloughing. Intense burning at the site of the injection means that calcium chloride is escaping around the needle and therefore the injection should be stopped at once. Injections can be repeated with safety at four-hour intervals. In a long series of such therapy we have not seen any other untoward effects.

RESULTS

The results obtained from the intravenous use of calcium chloride in individuals suffering from lead colic were most dramatic. There was almost immediate cessation of pain, frequently before the injection was completed. Such prompt relief made it seem highly improbable that the beneficial effects from calcium chloride were due to fixation of lead and calcium in the bones. Was not this immediate relief due rather to an antispasmodic effect of calcium chloride?

In order to elucidate further its mode of action, it was administered in other types of colic than that produced by lead, such as ureteral and biliary colic associated with stones, as well as in further cases of lead colic.

LEAD COLIC

Patients with lead colic suffer intensely from diffuse abdominal pain, usually below the umbilicus. During an attack they are cold, pale and often drenched with perspiration. They frequently double up and writhe around in bed because of the intense pain. The pain is thought to be due to the action of lead directly on the intestinal muscle, which causes a marked spastic contraction. In the intestines above this contraction ring there is a high degree of pressure produced by the increased peristalsis.[1] Such a contraction ring can in time be relieved by large doses of atropine and morphine, and occasionally temporarily by amyl nitrite or glyceryl trinitrate.

In twenty-four cases of lead colic the slow administration of 20 cc. of a sterile solution of 5 per cent calcium chloride relieved the pain immediately, frequently before the injection was completed. There remained a slight abdominal soreness. The patients almost invariably would go to sleep. In some instances the pain recurred several hours later but could always be promptly relieved by another injection. This period of freedom from pain is an excellent opportunity to clean out the intestinal tract. Magnesium sulphate is the cathartic of choice.

The action of calcium chloride in this condition is far superior to any other medication we have ever employed. In two patients suffering from lead poisoning it was observed that calcium chloride had only a

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* From the medical clinic of the Massachusetts General Hospital.

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2. Measurements of the skin temperature were made possible by the cooperation of Dr. Fritz Talbot.

3. Sollmann, Torald: A Manual of Pharmacology, ed. 3, Philadelphia, W. B. Saunders Company, 1926, p. 866.

temporary effect on the pain and frequently did not relieve it completely. Subsequent study and operation on these two patients revealed a perforating type of duodenal ulcer. Therefore, failure to obtain relief from pain by this method in a patient suffering from lead poisoning should lead one to suspect some other condition as the cause of the pain.

URETERAL COLIC DUE TO STONE

In ureteral colic we assume that the pain is partly due to much spasm around the stone. Above this point there develops an increased pressure which produces the intensely painful rhythmic contractions. We have administered calcium chloride to twelve such patients. In practically all of them there has been prompt relief from the intense colic. Most of the patients still complained of a dull ache in the costovertebral angle, but this was not severe enough to keep them from sleeping or to require morphine. In one case the injection of calcium chloride gave almost instantaneous relief, although morphine had had no effect. In another patient the stone was found in the bladder the next morning. Whether the relief from spasm, which follows the use of calcium chloride, will be sufficient to aid in the passing of the stone is still uncertain.

GALLSTONE COLIC

Gallstone colic offers a problem similar to the colic of ureterolithiasis. The opportunity to study the therapeutic effect of calcium chloride in this type of colic, however, has been limited. In six cases there resulted a prompt relief from pain, with only residual soreness in the right upper quadrant. In one patient, no relief was obtained. At operation she was found to have chronic gallbladder disease without stones.

Thus it is apparent that calcium chloride may be of diagnostic value as well as of therapeutic aid. Several other patients in this series who failed to obtain any relief from this form of therapy were found to be suffering from true inflammatory lesions rather than from simple spasm of the smooth muscle.

COMMENT

The almost instantaneous relief of lead colic following the intravenous use of calcium chloride is too rapid a phenomenon to be explained on the basis of suddenly increasing the skeletal storage of lead and calcium. The therapeutic benefit derived from its use in other types of colic enables one to classify it as an antispasmodic.

There is little information in the literature on the physiologic effects of calcium on smooth muscle. Its beneficial use in the treatment of the spasmodic manifestations of the various types of tetany has long been appreciated.[4] However, in such instances the spasmodic muscular contractions are due to calcium deficiency. Sollmann [3] describes an arrest of peristalsis as one of the toxic effects of calcium given intravenously. Vanysek,[5] in studies on the isolated intestines of cats, observed stimulation of the circular muscle and relaxation of the longitudinal muscle. In 1926, Kennedy [6] reported that increasing the calcium content of the fluid bathing an isolated strip of uterine muscle resulted in a loss of both tone and peristalsis. Perhaps the temporary increase in the serum calcium following calcium chloride injections has produced a similar effect in our patients. Negative results in animal experiments reported in the second part of this paper leave unexplained the mechanism of this clinical observation.[7]

CONCLUSIONS

1. The very slow, intravenous administration of 20 cc. of a sterile solution of 5 per cent calcium chloride promptly relieves the severe pain of colic caused by lead, or ureteral or biliary stone.
2. The relief afforded by such therapy is more rapid and more constant than that by other forms of treatment we have employed.

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THE SUMMER CAMP AS A FACTOR IN CONTROL OF DIABETIC CHILDREN

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A summer camp for the diabetic child is no longer unique. Several such camps have been organized and have been in operation for from one to five successful seasons. As we [1] have stated before, every large city is a potential field for the development of such a camp, which exerts a powerful influence on the morale and physical fitness of this special group. After an experience of five summers in the management of a camp for diabetic children, which has grown from a makeshift affair with four patients to the rather complicated organization of 1930, which was capable of caring for fifty children, we feel that this type of organization fulfils a definite need and that the development of other camps for diabetic children is to be encouraged.

The aim of all camps has been to get the child outdoors for a time and away from the parents, who may also need a respite from the constant watchfulness so necessary in the treatment of these diabetic children. The child is likewise entitled to a vacation such as is given others more fortunate. There is, however, another important factor involved, which outweighs all other considerations; namely, the psychology of the diabetic child himself. Overemphasis on a chronic disability during the formative period has in many instances led to the development of definite abnormalities of personality in these children. Any one who has dealt with many of them realizes what a problem they often present. The child is not forced to give up his dependence and does not wish to do so. This dependence, coupled with a sense of physical inferiority, engenders an infantile type of personality. Some of these children are intelligent beyond their years, and most of them are emotional and subject to moods of depression and exaltation. The group as a whole is difficult to handle.

It was with the view of aiding in the correction of some of these defects that the 1930 camp was organized.

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We made our appeal to the child from the standpoint of spending a pleasant summer vacation, but we meant to give him something else more permanently beneficial to carry home with him. The mere fact that these children are alive has resulted in the existence of an entirely new group of individuals, kept alive by modern medical achievement; and new problems with which one must be prepared to deal have developed along with them. The camp offers the physician an important means of aiding diabetic patients in making what often is proving to be a difficult adjustment to their surroundings.

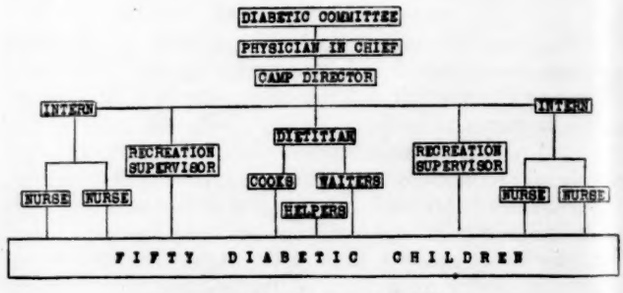
For these reasons we have made a special effort to give these children not merely a vacation in the country but also a period of expert supervision and training in mental hygiene, which might otherwise be denied them. Incidentally, their diabetes is accurately controlled by medical management, so that they benefit physically as well. Their minds are directed into proper channels by trained recreation workers. Not a minute of the day is idle or unaccounted for. The results have been most encouraging; in fact, we believe that the psychologic effects produced by the recreation workers have been just as important as the diabetic management. We hope to lay even more stress on this factor in our next camp.

The organization of the personnel and the layout of the camp are largely dependent on individual requirements and circumstances. We are indebted to the Detroit Water Safety Camp of the American Red Cross for the use of their camp on Ore Lake, and for the valuable advice of Mrs. William Carey, Jr., assistant director, whose experience in the management of camps for both sexes cleared the way of many pitfalls. This camp is composed of several buildings, suitable for dormitories; a cafeteria styled kitchen and dining room, and a large recreation hall for use in rainy weather. Housing facilities were increased by the use of a number of tents, properly floored.

The organization proper works through a diabetic camp committee, which is composed of friends who are interested in the Grace Hospital Diabetic Clinic. Plans are laid by this committee several months in advance. They provide uniform clothing and equipment for those too poor to pay for these necessities and aid in making contacts with the children. Weekly or bimonthly meetings are held, and clothing, sweaters, bathrobes and other necessities are made by the ladies. The committee also donates a considerable fund to aid in defraying expenses. The personnel and their respective responsibilities are explained graphically in the accompanying chart.

It will be seen from this diagram that there are three distinct groups concerned with the conduct of the camp proper, which are correlated through the camp director. The medical group is concerned solely with the diabetic management and medical care of the children. The recreation supervisors are responsible for all activities and entertainment. The dietetic department is concerned only with the preparation and serving of the diets. Maids are also useful adjuncts, and are of course under the order of the camp director. We also have a house mother, or chaperon, who has been a great comfort to the children.

All arrangements are made as far as possible six weeks prior to the opening date of the camp. A statement of the diet, insulin requirements, complications and condition of each child is obtained from the family physician or parents. A laboratory is equipped and is ready for operation on the opening day. This may be in charge of one of the interns, with a nurse as helper. Emergencies must be prepared for, and a hypodermoclysis set should be sterile and ready for use. The staff should meet several times previously and be instructed in the treatment of hypoglycemia and other details. We have found it advisable for the recreation workers to carry dextrose wafers, because of the prevalence of hypoglycemic reactions from the unusual amount of exercise, combined with the effect of a diet that is accurately given and followed. They become quite proficient in the recognition of this condition and soon treat it as a matter of course. A daily schedule is arranged for activities and rigidly enforced. It is necessary to have at least two recreation supervisors, preferably three. We had three: two men and one woman. This arrangement makes it possible to carry on the schedule as planned and leaves some one to supervise the inevitable group that does not wish to participate in the activities of that particular hour or day. The interns and nurses must also be multiple or they will be worn out before the camp is finished. We started with two interns and required a third before the close of the camp, thus enabling two to be on duty during the day and another at night. There is plenty of work to do.



Personnel and relative responsibilities.

The cafeteria style of serving is the only practicable method. Cold foods may be weighed out before the meal. Each child's place at the table is labeled, and meals are served to the children in the same rotation at each meal. The dietitian calls out the weights from her diet book, and one nurse or helper at each scale weighs the proper amount of food and places it on the child's plate. This method assures accurately weighed hot meals. We served three types of diets: high carbohydrate to our own patients, high fat to the university hospital group, and several other modifications to a third group. The three groups were kept at separate tables for the convenience of the dietitian.

While we try to adhere to the orders of the physician, it is not always possible, for insulin doses must be changed frequently. In every case we were able either to lower the insulin dosage or to increase the diet. The dietary increases ranged from 10 to 100 Gm. of carbohydrate. On the opening day of the camp, 570 units of insulin was administered. By the end of the first week this had been decreased to 474 units a day, and at the close of the camp we were using 426 units (population constant) a day. All but seven diets had been increased. Fasting blood sugar estimations were made weekly, and the last specimens were all within the normal range except six, of which only two were more than 200 mg. We found that the high fat diets gave the higher blood sugars and also the most trouble with insulin reactions. Many reactions occurred during the first few days; sometimes three or four patients were in hypoglycemia at the same time.

The supervised recreational activities of the camp were strongly featured. This department was in charge of Mr. Albert Moreau of the Detroit Red Cross (known to the children as "Uncle Al") and his assistants, Mr. Jack Marshall and Miss Sadie Smith, all of whom are trained in camp work. There were four swimming periods daily, two each for beginners and swimmers. Many of the children made remarkable progress under this instruction. A physician and a nurse accompanied each group. Great caution must be exercised on account of insulin reactions, and eternal vigilance is the rule. There were no insulin reactions while the children were in the water, possibly because of reflex stimulation by the water.

At the opening of the camp each child was given a leather thong on which beads could be strung. For each good deed, a bead was given. The owner of the longest string of beads at the close of camp was given a grand prize, won this year by a little chap who was especially keen on recognizing insulin reactions. Several birthdays, properly certified, were celebrated in fitting style. A show was organized, rehearsed, and presented to the parents and friends toward the close of the camp. Bonfires, hikes and community singing were indulged in regularly. Instructions were given in woodcraft, nature study and first aid. One of the finest and most lasting benefits of this camp was the foundation of a club, the "S. T. Y. D. Club," interpreted as "Stick To Your Diet." The object of the club is to organize the diabetic children, and one of the regulations states that each member must, as far as possible, earn the money to pay for his vacation at camp next year. This club held a successful Christmas party at the Grace Hospital this year, and it seems to have given the members an added incentive and interest in life.

The financial support of such a project is a problem that must be worked out by the sponsors to meet their own requirements. We have found that the expense runs about $20 a week per child, provided sufficient help and supplies are donated from some source. We use interns and student nurses from the Grace Hospital without cost, and the only employees who are paid from the camp fund are the cooks, waiters, helpers and hostess. The dietitian is furnished by the hospital and the recreation supervisors by the Water Safety Camp. A tremendous amount of effort is expended by all concerned, and the expense is great, but the benefit to the children is greater. We are quite sure that there has been a noticeable improvement in morale and manageability in those who were fortunate enough to attend this camp. The S. T. Y. D. Club aids in prolonging the ideals of the camp throughout the year. A foundation is thus laid for the development of an organization through which one can work to promote ideals, character and will power, attributes so necessary if these children are to continue successfully their lifelong fight with diabetes.

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Blood Platelets.—The number of blood platelets in healthy animals is fairly constant, though daily and even hourly fluctuations of considerable volume occur. In general, the level is not as constant as that of erythrocytes, but is more constant than that of leukocytes. Spontaneous variations, when they occur, can usually be explained on the basis of infections or of alterations of the environment, especially changes in light.—Steiner, P. E., and Gunn, F. D.: The Response of Blood Platelets to External Stimuli: Ultraviolet Light, Iodine and Coal Tar, *Arch. Path.*, February, 1931.

THE PREVENTION OF SPINAL CORD DEGENERATION IN PERNICIOUS ANEMIA *

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A survey of the clinical course of eight patients with pernicious anemia and spinal cord degeneration indicates that they may be divided sharply into a group of four that have shown no neurologic progress and a like number that have grown steadily worse. The period of observation in five of these cases is more than three years; the others have been followed from one and a half to two and a half years.

The determination of the effect of liver treatment on funicular myelosis in pernicious anemia is of the greatest importance. The hematopoietic remission with liver occurs so readily that it is probable that the majority of these anemic patients will be preserved by it from death in anemia. Yet, if cord degeneration is not preventable by the same means, over 80 per cent [1] of these might develop it with its prolonged disability, painful symptoms and ultimate death in paraplegia.

Contradiction as to this effect is present in the literature. Richardson [2] makes the optimistic statement: "Central nervous system symptoms clear up either entirely or to a greater or lesser extent provided an adequate liver intake is maintained. It is essential to keep the red cell count above 4.5 million per cubic millimeter in order to prevent involvement of the central nervous system." Ungley and Suzman,[3] after reviewing sixty cases of subacute combined degeneration of the cord with anemia, conclude that "liver therapy has definitely beneficial effects on the symptoms and signs of subacute combined degeneration" and that "all signs and symptoms of cord involvement may disappear." Against these favorable views is the statement of McAlpine [4] that paresthesias persist, that there is no alteration in the reflexes, and that ataxia is improved only by muscle training. He thinks the conclusion of Ungley and Suzman too optimistic. Sturgis [5] recently said that "the neurologic symptoms may remain stationary or may progress even though the liver is given in the most efficient manner which is known at present."

Individual cases have been reported, some suggesting that it is effective and others that it is ineffective.[6] Curschmann [7] and Krause [8] each report four cases suggesting failure. One of the most interesting reports is that of Isaacs,[9] who states that there may be relapse

* From the medical service of Dr. Charles A. Elliott, Passavant Memorial Hospital.

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on the part of one or more systems without a corresponding involvement of other systems. He also reports a case similar to a number of others reported, showing increasing neurologic symptoms during a rapid blood remission under liver. With this confusion in mind the following summary of my experience has been made:

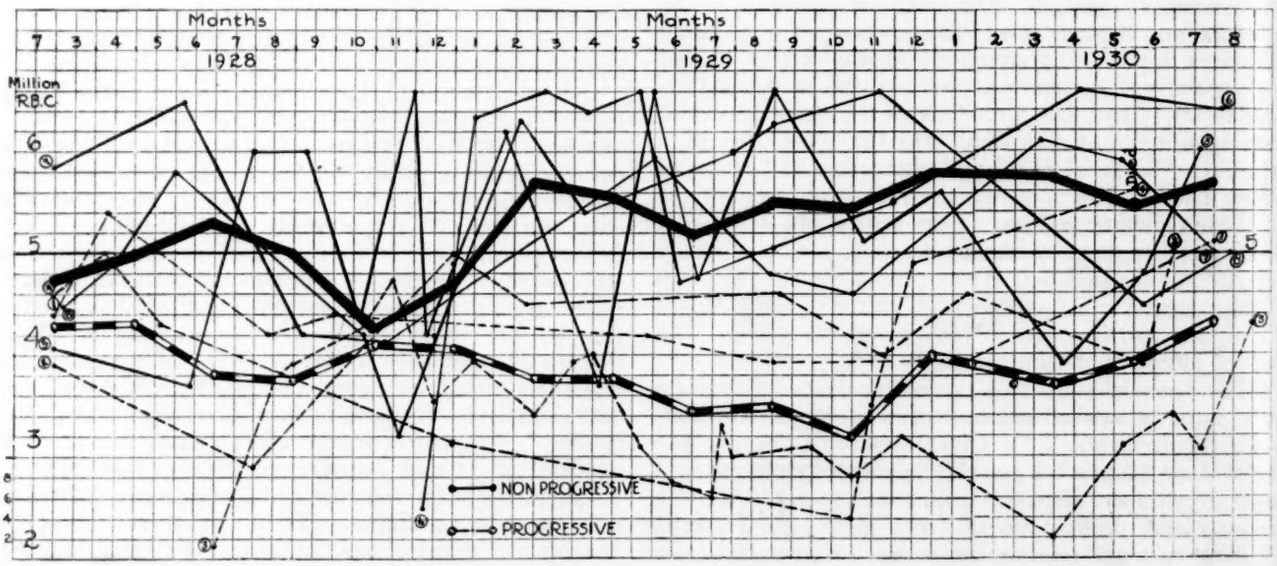
CASES SHOWING PROGRESS OF CORD SYMPTOMS

CASE 1.—F. R., a man, seen in December, 1927, complaining of weakness, dyspnea, pallor and a loss of 50 pounds (22.7 Kg.), had had bilateral foot drop for twenty years previous to this, diagnosticated by Dr. Lewis Pollock as amyotrophic lateral sclerosis. Typical high grade pernicious anemia was present. Within four months his blood became normal under adequate treatment with liver. At this time he returned to work. During the remaining two years he had been on inadequate amounts of liver. The blood count was below 4 million for two periods during 1929, but rose finally to 5 million after taking one vial of liver extract (Eli Lilly & Co. No. 343) daily and one-third pound of liver once a week. Loss of pain sense, which had been present in 1928, and increased loss of joint sense, have occurred. Vibration sense and tendon jerks had been lost in 1928. The patient worked independently in 1928, used crutches in 1929 and is unable to walk alone now.

CASE 2.—R. L., a man, had been known to have pernicious anemia since 1924. In May, 1926, he was put on liver with a rise of red blood cell count from 1 to more than 4 million. However, a period of severe anemia of several months' duration is suggested by the isolated low count done in August, 1928; twice during 1929 and 1930 the counts were below 4 million but the last count was again just 5 million. Spasticity was marked in 1926; this continued to increase; in December, 1928, he became unable to walk. Loss of control of the urinary bladder ensued. He is at present bedridden, with active bladder infection. The degree of involvement of the cord in this case seems to be equaled by that in case 7, in which also treatment was begun in 1926. Both patients had extreme changes, producing spasticity at that time. Any increase in neurologic disease was certain to force them to bed. My experience is epitomized by these two cases: Patient 2, who had unsatisfactory blood counts, became paralyzed, while patient 7, with apparently equal cord disease, who has had satisfactory counts most of the time, has kept on his feet.

CASE 3.—W. J., a man, was found to have pernicious anemia in June, 1928. Examination then by a consulting neurologist (Dr. Yudelson) revealed no cord changes. Since the diagnosis he has been uncooperative. The blood counts have been below 4 million constantly. Paresthesias of the hands and feet have developed, the reflexes are now exaggerated, and he walks with some difficulty.

CASE 4.—C. F. S., a woman, was known to have had pernicious anemia since February, 1926. She began to take liver in November, 1927. It is interesting that she took liver faithfully as ordered but not in sufficient amounts to maintain a normal count until January, 1929; until August, 1929, she had had no neurologic symptoms. For ten months she had neglected to take liver regularly and from July to October, 1929, had taken none. She was then strongly urged to restart it because of the onset of neurologic symptoms and she had a satisfactory hematopoietic remission; the blood counts during the last three months were approximately 5 million. She died of lobar pneumonia in March, 1930. During this final blood remission the neurologic symptoms, which had already begun during anemia, steadily increased. Ataxia has developed; Romberg's sign is positive; the reflexes are normal; there are paresthesias of numbness, stiffness and cold, but pain and vibration tests are normal.



The broken lines represent the red cell counts of patients having progressive nervous symptoms; the solid lines represent red cell counts of patients without progressive nervous symptoms. The heavy broken and heavy solid lines indicate the average of these blood counts for each group. The 5 million level is reinforced.

CASES NOT SHOWING PROGRESS OF NEUROLOGIC SYMPTOMS

CASE 5.—A. G., a woman, was found by the Mayo Clinic in 1926 to have pernicious anemia with subacute combined degeneration of the spinal cord. Her complaint was numbness in the right leg and pain in the back on walking. She was referred with the same diagnosis by Dr. Peter Bassoe in July, 1927. At that time she had no gross anemia but was put on liver and liver extract, which she had taken faithfully except for two months in the spring of 1929, when the blood count fell to less than 4 million. On returning to liver a blood count of more than 6 million was produced. Dr. Bassoe's examination in July, 1927, showed knee jerks present, achilles jerk absent, Romberg's sign negative and a diminished vibratory sense. A neurologic examination in May, 1930, revealed the same conditions. The patient's clinical condition is unchanged.

CASE 6.—T. F. W., a woman, was found to have pernicious anemia in December, 1926. A satisfactory and rapid hematopoietic remission was obtained. During the subsequent eighteen months the red blood cell count had been regularly high in spite of the omission of liver for two months in the fall of 1929. Her original complaint was of numbness in the legs. On examination in December, 1928, the knee jerks were present, the achilles jerks absent. Vibration sense was present but diminished. The Romberg test was positive. The neurologic

condition in July, 1930, was unchanged as regards these objective signs, but the paresthesia is less.

CASE 7.—S. J., a man, was found to have pernicious anemia in September, 1925, at which time he had no neurologic signs. The feeding of liver in large amounts was begun in August, 1926. A rapid rise of the blood count followed. Counts below 5 million have occurred in the fall of each year since, but at other times they have been high. Additional liver has been urged at such low periods. Neurologic examination in August, 1927, by Dr. Yudelson was as follows: exaggerated patellar and achilles reflexes with spasticity ataxia of gait, delayed deep sensibility, diminished epicritic sensibility and paresthesia of cold. Neurologic examination in February, 1930, revealed knee jerks and ankle jerks lively, unsustained clonus, definite loss of joint sense, pain, touch and vibration sense normal. From 1926 to 1930 the patient was barely able to walk with the help of a cane and with assistance; slightly better coordination has developed coincident with vigorous self instruction and exercise.

CASE 8.—W. G., a man, had had a blood count of 1 million in February, 1927. A rapid remission followed the use of liver. Since then he has had high blood counts with the exception of one in January, 1928, after he had neglected liver for a short period, and two in November, 1928. Neurologic examination in 1927 revealed normal reflex and sensory tests but paresthesias of numbness in the hands and feet. In February, 1930, the reflexes were normal; the Romberg test was negative; he still complained of numbness. Clinically he was no worse than in 1927; he continued to walk to his work, which is that of a highly skilled tool-maker.

COMMENT

The accompanying chart indicates individual blood count curves divided by character into the two groups described in the preceding paragraphs. Two heavier lines of similar type indicate the average blood counts of these two groups. The following points seem to emphasize the value of this comparison: The cases in each group are of about the same duration and severity. Two of the progressive group (2 and 4) had serious bladder infection which, with their noncooperation, was a cause of anemia. In all the cases in the progressive group, forcing the feeding of liver resulted in a rise of the blood count; hence there would seem to be no ground for concluding that the hematopoietic function of one group was less favorably affected by liver than the other. The phenomenon of hematopoietic remission with advancing cord symptoms, which is illustrated by case 4, has been described by Isaacs,[9] by Ungley and Suzman,[3] and by Cohen.[6] These observations have led to the opinion that liver cannot check cord degeneration. The explanation of the apparent contradiction may lie in the difference in rate of liver remission occurring in the two systems. The recovery of the hematopoietic tissue is relatively rapid, requiring only from eight to twelve weeks; the neurologic pathologic changes may need to go on to a permanent state, the symptomatic expression of which may be evident months later. Furthermore, the amount of specific substance necessary to check disease of nerve tissue may be greater than that required for restoration of the bone marrow. At present the red blood cell count is being used as an indication of entire satisfaction of the specific deficiency. Probably, in accord with the studies of Hurst,[10] the Price-Jones curve should be used as a criterion. No evidence of recovery from cord degeneration during therapy is to be found in this series. Prevention of further involvement is indicated.

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CONCLUSION

It would seem that the patients who received sufficient specific antianemic substance to keep the red blood cell count above 5 million per cubic millimeter did not have progressive degeneration of the central nervous system in contrast to those who were allowed to remain even slightly anemic, in whom progressive degeneration did occur.

8 South Michigan Avenue.

STUDIES OF VELOCITY AND THE RESPONSE TO INTRAVENOUS INJECTIONS

III. TECHNIC OF THE INTRAVENOUS DRIP IN CLINICAL PRACTICE *

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Elsewhere we[1] have described the syndrome of "speed shock" resulting from the rapid intravenous injection of any molecule. The reaction which occurs within one minute of the introduction of the substance has for its major symptoms a rapid fall of blood pressure, respiratory irregularity and incoagulability of blood. At times death follows, but usually the animal makes a complete recovery.

The site of the disturbance that occurs in "speed shock" is probably the liver cell, and the pathogenesis appears to be similar to that found in anaphylactoid phenomena, the post-transfusion chill, the nitritoid crisis, protein shock and allied conditions, variously called colloidoclasis and hemoclasis. In our work we have shown the reaction to be independent of the "nature of the agent, its dose or concentration, or the functional state of the animal." We believe that "speed shock" is a reaction based on a technical error and not a physical, chemical or immunologic entity. We have shown the tremendous tolerance on the part of the organism to large intravenous doses of many substances and to the introduction of a great bulk of fluid, provided the rate of flow is reduced to 2 or 3 cc. per minute ("intravenous drip").

The obvious prophylaxis for "speed shock" is the intravenous drip. Despite the universal recognition of the necessity of slow injection, definitions of velocity vary greatly, and many regard from 30 to 50 cc. per minute as a "slow" injection.

The intravenous drip has proved to be of enormous value in the prophylaxis and management of shock and collapse and particularly of thyroid "storms," in the treatment of hemorrhage, in the introduction of potent serums and in the management of various acute emergencies of practice, such as coma, uremia and sepsis. At present we are collecting data on the applied therapeutics of this procedure. Pending their publication we wish to describe the technic of the intravenous drip for, while the principle is not at all new, its successful performance depends on the meticulous care

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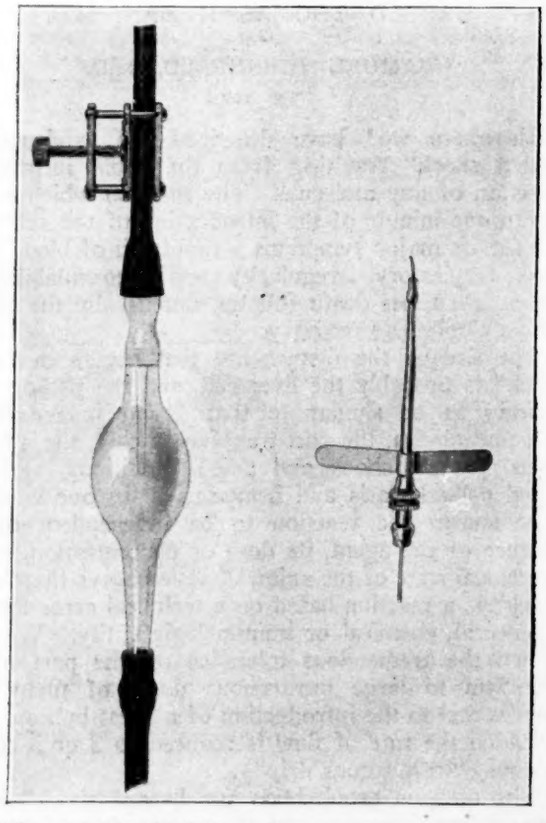
with which the smallest details are executed. The apparatus required includes:

1. A stand for the infusion reservoir.
2. A 250 cc. graduated flask of the arsphenamine type.
3. Two pieces of rubber tubing respectively 30 cm. and 150 cm. long.
4. A connecting tip for needle or cannula.
5. A rectal drip.
6. A Hoffman clamp.
7. An artery clamp.
8. A 2 cc. and a 5 cc. syringe.
9. Intravenous needles.
10. Intravenous needle-cannulas.

The entire set is thoroughly cleansed and sterilized. The two pieces of rubber tubing are connected by the rectal drip and the free end of the shorter piece is attached to the reservoir. Between the reservoir and the drip is placed the Hoffman clamp. The reservoir



At left, rectal drip with Hoffman clamp; at right, venous cannula with blunt end and bulbous tip.

and tubing are filled with the solution, the clamp is loosened, and all air bubbles are expelled. A blood pressure cuff is placed around the arm, and during the introduction of the needle or cannula it is inflated to a point midway between systolic and diastolic pressures. This insures a maximum distention of the vein. If the vein is easily accessible, a large needle is introduced directly; the cuff is then deflated and the infusion started. In any serious emergency, in children, when it is difficult to locate a vein, it is preferable to cut directly down on the vessel. After the cuff is inflated, a longitudinal incision is made over the vein. The vein is thoroughly isolated and cleaned of fascia, and beneath it are placed two ligatures. The distal ligature is tied, but the ends are left loose. With fine pointed scissors the vein is incised obliquely about 2 cc. centrad to the tied ligature. The blood pressure cuff is deflated. A large phlebotomy needle is then introduced into the vein, or if it is available we prefer to use a blunt venous cannula with a bulbous tip. This cannula possesses the advantage of not so readily tearing through the wall of the vein nor slipping out of the vein. The cannula or the needle is introduced into the vein as far as possible. The proximal ligature is then tied over the cannula. The ends of this ligature are cut. The long ends of the other or distal ligature are then tied over the cannula to secure it in a position parallel to the vein. Sterile adhesive plaster or cotton is placed between all metallic points and the tissue. The skin is temporarily closed over the cannula with sterile adhesive plaster and a dressing of sterile gauze smeared with petrolatum is placed over the incision. The flow is immediately started, lest clotting occur in the needle or the adjacent segment of the vein. The arm is immobilized by wrapping it in a large pillow fastened together with safety pins. All these technical details arranged, the rate of flow is adjusted by the Hoffman clamp so that not more than 50 nor less than 20, and preferably from 30 to 35 drops fall in each minute. The rate of flow is not regulated until all other variables are controlled. Electrical pads or hot water bottles are arranged over the pillow and around the terminal third of the tubing. It is not necessary to heat the supply in the reservoir.

Thus assembled we have used the intravenous drip for as long as eleven days without interruption, and with only occasional adjustments of the Hoffman clamp. At a rate of 2 or 3 cc. per minute, from 3,000 to 4,000 cc. of fluid is introduced daily. If a 5 per cent solution of dextrose is employed, from 150 to 200 Gm. of the sugar will be administered and will supply from 600 to 800 calories in twenty-four hours. A 20 per cent dextrose solution will furnish from 600 to 800 Gm., or from 2,400 to 3,200 calories. If glycosuria intervenes, insulin in appropriate dosage may be added directly to the infusion fluid. Saline solution, acacia, diluted serums and citrated blood may be substituted for the dextrose solution or added to it. A discussion of the uses and indications for these vehicles will appear in a later article.

The set-up may also be used for the introduction of various drugs. The drug is taken up in a 2 or a 5 cc. syringe. An artery clamp is placed on the rubber tubing about 2 cm. above the cannula. A drop of iodine is dabbed on the tubing below the clamp, the needle of the hypodermic syringe is plunged into the lumen of the tubing, and the drug is washed with a few cubic centimeters of saline solution. The injection of the drug must be made slowly, for we have produced "speed shock" with most of the common drugs, including digitalis, caffeine, atropine, strychnine and quinine. After the drug has been introduced, the artery clamp is released and infusion reinstituted.

In the event of any interference with the rate of flow of the infusion, the rubber tubing is examined to make sure that no kink has occurred. To ascertain whether the needle has slipped from or torn through the vein, the pillow and dressings are removed. In either case the tissues will be infiltrated. If by any chance the needle has become plugged, the connecting tip is removed, and occasionally if the obturator is reintroduced the clot may be dislodged and the infusion resumed.

Once the intravenous drip is in operation, the clinician is in full control of the therapeutic situation, for the drip is independent of the cooperation of the patient, independent of the irritability of the stomach or rectum. There is no concern regarding absorption of the thera-

peutic agents; the requirements of the body for fluid, salt, dextrose and nutrition are readily taken care of without any physical strain on the patient. Trying and exacting emergencies may be managed accurately and efficiently by a single procedure rather than by a multiplicity of arduous, complicated and often ineffectual maneuvers.

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AUTOTRANSFUSION

USE OF BLOOD FROM HEMOTHORAX *

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The reinfusion of extravasated blood is rapidly becoming an accepted procedure. A careful search of the literature to date has revealed only one reported case of autotransfusion of blood from the pleural cavity. Therefore we believe that the three reports given here of the use of autotransfusion in cases of hemothorax are sufficiently interesting for presentation.

Autotransfusion, i. e., the reinfusion of the patient's own blood, has obtained increasing attention during the past few years following the reports in 1914 of Johannes Thies [1] of Leipzig, who reinjected blood obtained from the abdominal cavity in cases of ruptured tubal pregnancy. However, according to Kubányi [2] of Hungary, the idea appears to have originated in England, as William Highmore [3] in 1874 suggested its use, and in 1885 there is a report of its actual application by A. G. Miller,[4] who collected and reinjected with gratifying results blood lost during an amputation at the hip joint. The first autotransfusion in this country appears to have been performed in 1920, by White.[5] Since then, numerous reports are to be found in the literature, those of Burch,[6] Cushing [7] and Lillian Farrar [8] probably deserving especial attention for their reviews of the literature and bibliographies. The article by Farrar covers the subject up to October, 1929. All authors agree that the method is both valuable and safe.

The lone case of autotransfusion of blood from the pleural cavity, previously reported, was that of Elmendorf,[9] who in 1917 reinfused 200 cc. of blood that had been withdrawn from the right pleural cavity of a patient with a gunshot injury, the patient showing primarily signs of anoxemia. Other than this, no further cases have to our knowledge been reported.

Our first case was undertaken with no knowledge of any previous attempt but purely as a final heroic attempt to save the patient's life. The case is therefore reported in detail:

CASE 1.—G. K., a white man, aged 42, was admitted to the hospital, March 2, 1930, with multiple fractures following an automobile accident. The family and past history was irrelevant. There was no familial tendency to bleeding. The physical examination showed multiple abrasions over the body. There were fractures of the right clavicle, the pelvis and the fifth, sixth and seventh ribs on the left. The lung fields were resonant bilaterally throughout and the breath sounds vesicular. There were no signs of air or fluid in either pleural cavity. The heart and abdomen were normal. The blood pressure was 130 systolic and 80 diastolic; the temperature 99 F.; the pulse 100, and respiration 20. The white blood cell count was 13,500; polymorphonuclears, 82 per cent; the red blood cell count was 5,240,000, and hemoglobin 89 per cent.

Two days after entry the patient was moved to the x-ray room for films of the chest and pelvis. Soon after he returned from the x-ray department, the condition of the patient grew serious. There was evidence of hemorrhage and shock, the bleeding apparently having started because of movement to and from the x-ray room. Within three hours the pulse had mounted to 150 and respirations were 50. Examination at this time showed flatness over the left side of the chest with all the other signs of fluid. The patient was in early shock. A venoclysis of 500 cc. of physiologic solution of sodium chloride was given immediately. Arrangements were made to take him immediately to the operating room, and in the fifteen minutes that elapsed the pulse rose to 180 and the respirations to 60. The blood pressure was 100 systolic and 60 diastolic.

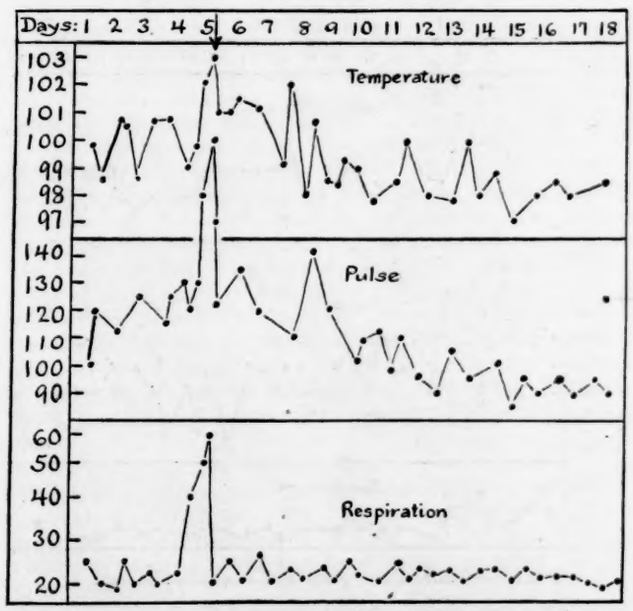

Chart 1.—Temperature, pulse and respiration in case 1. The arrow indicates the time at which autotransfusion was done.

From the left pleural cavity 360 cc. of unclotted blood was aspirated and replaced by 800 cc. of air. The aspirated blood was filtered, citrated and autotransfused into the vein of the right arm. Improvement was immediate, and within four hours the pulse was down to 130 and respirations to 20.

The patient was returned to the ward; the head of the bed was elevated and the bed tipped slightly toward the left side. The patient could not turn on his left side because of a fracture of the pelvis. The patient, while still in shock, was given 1,500 cc. by hypodermoclysis and 50 cc. of 50 per cent dextrose intravenously.

No attempt was made to determine the exact origin of the bleeding because of the extensive injury to the chest wall.

The response to the autotransfusion was remarkable, improvement being steady. No further hemorrhage took place. At present, about one year later, the patient is back at his usual occupation of cook.

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8. Farrar, Lillian K. P.: Auto Blood Transfusion in Gynecology, Surg. Gynec. Obst. **49**: 454 (Oct.) 1929.
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There is no doubt in our minds or in that of the other members of our staff that in this instance at least the procedure of autotransfusion constituted the favorable turning point in a condition which otherwise must certainly have terminated fatally.

Stimulated by this successful outcome, we tried the procedure in two other cases, one a stab wound of the chest and the other a gunshot injury of the chest. Here a different problem presented itself, in that we were dealing now with a hemothorax which was potentially complicated by direct contamination from without. Although we considered this possibility slight and knew that blood not only is an unsuitable medium for the growth of bacteria but also has marked bactericidal properties,[10] we nevertheless did not feel justified in subjecting the second patient to a possible blood stream infection, especially as his condition was not immediately critical. Forty-eight hour cultures of the collected blood were therefore taken to establish its sterility and then reinfusion was done. By the time the procedure was undertaken, in the third case, further study had taught us that the blood of an infected

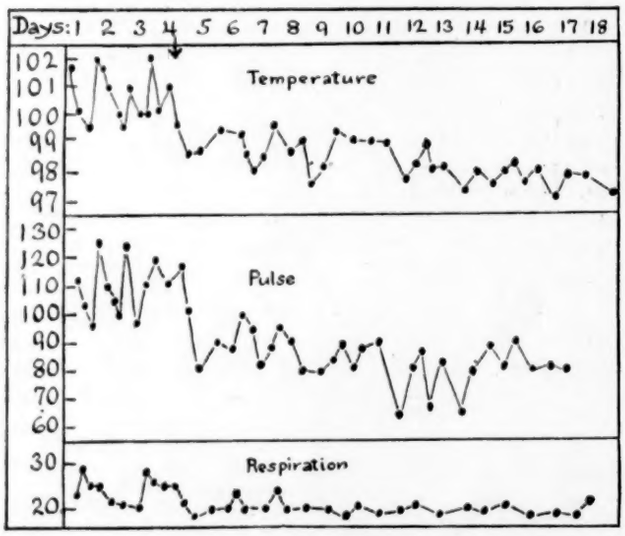

Chart 2.—Temperature, pulse and respiration in case 3.

hemothorax would have clotted spontaneously,[11] and since this had not occurred, reinfusion was done without waiting for blood culture reports.

CASE 2.—A. C., a youth, aged 19, was admitted to the hospital, July 28, 1930, with a stab wound in the left anterior part of the chest wall following a street fight. The past and family history was irrelevant. The physical examination was negative save for the chest. The left side of the chest showed flatness to percussion with absent fremitus and breath sounds up to the level of the second interspace both anteriorly and posteriorly. Above this level the breath sounds were bronchial in type and egophony could be demonstrated. The right side of the chest showed only a deviation of the trachea and the heart to the right. The patient at no time showed signs of severe respiratory embarrassment. The white blood cell count was 10,141; polymorphonuclears, 82 per cent; the red blood cell count was 2,320,000, and hemoglobin 66 per cent.

July 28, 900 cc. of blood was aspirated from the left pleural cavity and replaced by 1,200 cc. of air. The aspirated blood was examined microscopically and by culture for infective organisms and preserved on ice for thirty-six hours. No growth being found on culture, 250 cc. was then warmed to 100 F., filtered, and autotransfused into the patient's venous system. This gave rise to a slight general reaction with chills and general malaise.

After another twenty-four hours an additional 250 cc. of the same sample was autotransfused with the same reaction, though less pronounced. The remaining 400 cc. was therefore given as a rectal instillation.

At this time the fluid level in the chest was found to have climbed to the third interspace and 1,000 cc. was aspirated. This sample was found to be more of a serous effusion, which was repeatedly aspirated until August 27, one month after entry, a thoracotomy was done and 150 cc. of gelatinous fibrin removed. The patient has been free from fluid since then.

CASE 3.—J. A., a man, aged 26, entered the hospital, Aug. 6, 1930, with a hemothorax on the right, following a gunshot wound of the right side of the chest. The temperature was 102 F., pulse 130 and respirations 32 on entry. The physical examination was negative save for the chest, which showed the fluid level to be at the third interspace. The patient showed severe respiratory embarrassment. The white blood cell count was 12,180; red blood cell count, 4,140,000; polymorphonuclears, 82 per cent, and hemoglobin 35 per cent.

From the right pleural cavity, 1,000 cc. of blood was aspirated, filtered and immediately transfused into the patient's venous system. The aspirated blood was replaced by air. Within twenty-four hours the pulse, temperature and respirations were all down to normal and remained so until the patient's discharge from the hospital.

The technic of autotransfusion of blood from the pleural cavity is fundamentally simple. A combination of almost any method of thoracic aspiration and simple intravenous infusion of the collected material will suffice. We have, for our purposes, directly adopted an apparatus which had previously been reported by one of us[12] as "A Closed Method for the Transfusion of Citrated Blood." As we are here dealing with a blood fluid which no longer tends to clot, the citrate is unnecessary, but the apparatus itself furnishes a closed system for obtaining the fluid, preserving it for any desired period, and finally reinfusing it into the patient's venous system at any desired rate, without transferring it to another container.

This method suffices for the actual collection, maintenance and infusion of the material obtained from the thorax, but this does not complete the procedure. We firmly believe that the withdrawal of blood from the thoracic cavity should always be augmented by observation of and probable maintenance or increase of the intrapleural pressure relationships existing at the moment. This is best accomplished by having a pneumothorax apparatus simultaneously connected with the thoracic cavity. This allows not only for pressure determinations but also for replacement by air or oxygen so that any desired intrapleural pressure may be maintained. The importance of this replacement therapy in preventing further hemorrhage, respiratory embarrassment and adhesions has been stressed by Bastianelli,[13] Bradford[14] and Davies.[15]

The material collected should be filtered through gauze before reinjection. It may be citrated but we do not consider this procedure either necessary or desirable. Direct experimentation has shown that the bloody fluid in hemothorax does not contain fibrinogen and hence that, although it resembles blood to the eye, a process resembling clotting has really taken place and

10. Wright, A. E.; Colebrook, L., and Storer, E. J.: New Principles of Therapeutic Inoculation, Lancet **1**: 365 (Feb. 24) 1923.
11. McGuire, W. A.: Hemothorax Following Gunshot Injury to the Chest, J. A. M. A. **72**: 1269 (May 2) 1919.
12. Brown, A. L.: A Closed Method for the Transfusion of Citrated Blood, California & West. Med. **31**: 205 (Sept.) 1929.
13. Bastianelli, R.: Treatment of Chest Wounds with Special Reference to Artificial Pneumothorax, Surg. Gynec. Obst. **28**: 5 (Jan.) 1919.
14. Bradford, J. R.: Gunshot Injuries of the Chest with Special Reference to Hemothorax, Brit. M. J. **2**: 141 (Aug. 4) 1917.
15. Davies, H. M.: Surgery of the Lung and Pleura, New York, Oxford Medical Publications, 1930.

that it is in reality defibrinated blood.[16] Just what causes this defibrination is a moot question, Rietz [17] claiming that defibrination occurs through respiratory movements and Filatov [18] believing that it is a selective biochemical reaction between the blood and secretions of the serous lining of the cavity. Rietz has shown experimentally in dogs that an intraperitoneal hemorrhage becomes defibrinated in from fifteen minutes to nineteen hours and then becomes suitable for reinfusion. Rossi [19] shows experimentally that, if the microscopic appearance in size, shape and color of the erythrocytes is normal, reinfusion may safely be carried out regardless of the interval that has elapsed since the extravasation. Otherwise toxic symptoms may supervene.

We have observed that blood removed from a hemothorax and kept on ice in a sterile container does not tend to clot, although it does separate out in layers and may, to some extent, hemolize. Before reinjection, blood that has been kept any length of time should be reexamined as to its state of preservation. A homogeneous suspension should be obtained on filtration before reinjection. This must be done in a careful manner so as to minimize traumatizing the cells.

Indications as to the volume to be reinfused appear to be similar to those governing the amount to be given in an ordinary transfusion.

We do not consider it to be true surgery to withdraw good blood and throw it away. Therefore, in the foregoing discussion, we have attempted to emphasize the practicability and advisability of autotransfusion of blood from the pleural cavity.

490 Post Street.

Clinical Notes, Suggestions and New Instruments

NEUROSINE POISONING *

G. CRESWELL BURNS, M.D., LOS ANGELES

A widow, aged 41, was admitted to the medical service of Dr. E. Richmond Ware, March 21, 1930. She was irrational and disoriented. She shouted and muttered meaningless words, was restless, and was thrashing about on the stretcher. She previously had symptoms of kidney colic. February 4, while in the urologic service, she presented to the physician a few samples of stones which she said she had passed. She complained then of pain in her back and left side, so severe at times that a physician had to administer a hypodermic injection. She left the ward without consent the day she was admitted.

Eleven days later, February 15, she was readmitted to the urologic service. She had received morphine hypodermically before admission. She stayed three days, leaving after the renal colic subsided. She stated that she had three attacks of pain in the past month, the last attack continuing forty hours. For twenty years she had complained of renal colic. Roentgenograms made during her stay in the hospital did not reveal any renal calculi.

At the time of the third admission, March 21, the history as obtained from the daughter was that five days previously she had been given some pills and another medicine as a sedative. The latter medicine was to have been taken 1 drachm (4 cc.) three or four times a day. Instead, she took it every two hours day and night for two days and a half. The patient consumed an 8 ounce (30 cc.) bottle of this medicine, which was learned to be Neurosine. She lapsed into a deep sleep, which lasted twenty-four hours. She was aroused, two days before admission, by her physician. Subsequently she was delirious and irrational.

On admission to the hospital, the patient, who was obese, was unable to respond to questions and was completely out of touch with her environment. The axillary temperature was 97 F., the pulse rate 92 and respiration 24. The skin was warm and flushed. The pupils were equally dilated and reacted promptly to light. The lips were parched. The heart was regular, with tones of fair quality. No murmurs were heard. The patient winced when the abdomen was palpated but there was no local rigidity. The knee jerks were equal and moderately exaggerated. There was incontinence of feces and urine.

The patient received ten ampules of caffeine sodiobenzoate, 7½ grains (0.5 Gm.) each dose, in the first twenty-four hours after admission. She was also given paraldehyde in an effort to stop her shouting. Fluids were forced by mouth and she was given 1,000 cc. of physiologic solution of sodium chloride intravenously. During the next twenty-four hours she received six ampules of caffeine sodiobenzoate, and 2,000 cc. of physiologic solution of sodium chloride intravenously, along with fluids by mouth and occasional doses of paraldehyde. For short intervals the patient became quiet but continued restless. During the next two days she was given considerable phenobarbital sodium and caffeine sodiobenzoate. March 25, four days after admission, the patient called for a drink of water. From this time on she gradually returned to consciousness.

Eight days after admission, and two days before discharge, she stated that when she became ill she gave a jerk out of her chair at home, and that was the last thing she remembered. During this interview she was partially oriented, knowing that it was March, 1930, but not the date. She was under the impression that she had been asleep for three weeks. When asked how long she had been awake, she said seven or eight days. Actually only three days had the patient been able to converse. She did not admit that her mind had been in the least affected, or that she had heard voices or seen visions. But during the three days past she had been having hallucinations and delusions. She told the nurses that she could not understand how a boarding house like this would permit men to climb into bed with the women. At one time she pointed and said, "See that young man there? Well, that's that old woman's husband!" There was no man there.

A Wassermann reaction and Kahn test were negative. Urinalysis of a catheterized specimen was negative except for a moderate number of pus cells. Nonprotein nitrogen was 27 mg. per hundred cubic centimeters of blood, and the carbon dioxide combining power 43.3 per cent by volume, determined two days after admission.

The patient was discharged, March 31, ten days after admission, her normal mental state apparently recovered.

Cannabis, or Indian hemp, is the active principle in Neurosine, being present in the amount of 9/10 grain (0.04 Gm.) to each fluidounce of the mixture. Therefore, if the patient took the 8 ounces of Neurosine, which she probably did, she consumed in two and one-half days 4 9/10 grains (0.3 Gm.) of cannabis.

The effect of cannabis on the central nervous system consists of a combination of depression and stimulation, the latter being most marked early and when large doses are given. It tends to plunge the patient into a state of semiconsciousness with loss of power of judgment, and stimulation of the imagination. Continuity of thought becomes impossible, and the patient, stimulated at first to hyperactivity, associated with a feeling of well being, is apt to behave in a senseless manner, talk at random and be absurdly merry.

Especially characteristic is a loss of the power of appreciating distance and time, near objects generally seeming remote and minutes lengthened to hours. This patient was utterly confused as to time. Hours of sleep had seemed like weeks to her.

The peripheral sensation may be altered to the extent of numbness and tingling. Incoordination is pronounced, and convulsions may occur.

Exhilaration is most marked when the drug is smoked. When taken by mouth in small amounts, exhilaration does not usually occur. Large doses cause an increase in the cardiac rate. No disturbance of digestion is caused by the drug in moderate doses.

16. Henry and Elliott: J. Roy. Army M. Corps **27**: 527.
17. Rietz, T.: Reinfusion of Extravasated Blood, Lyon chir. **19**: 34 (Jan.) 1922.
18. Filatov, A.: Klinische und experimentelle Beiträge zur Reinfusion des in die Körperhöhlen ergossenen Blutes, Arch. f. klin. Chir. **151**: 184, 1928.
19. Rossi, C.: Reinfusion of Extravasated Blood, Policlinico **31**: 358 (July) 1924.

* Read before the monthly medical staff meeting of the Los Angeles County General Hospital, May 26, 1930.

It tends to dilate the pupils. After extremely large doses, depression of the circulation and respiration may appear, but death from cannabis poisoning is rare, no case terminating fatally from this cause having apparently ever been reported.

Chronic poisoning, or "hashish habit," observed in Eastern countries, may result in chronic mania or melancholia. Sometimes subjects have terrifying hallucinations and become destructive.

In addition to cannabis, Neurosine [1] contains, according to the label on the bottle, 0.075 grain to the ounce each of extract of hyoscyamus and fluidextract of belladonna, and 0.06 grain to the ounce of oil of bitter almonds. The amounts of these drugs taken in the 8 ounces were all less than the therapeutic dosage.

1052 West Sixth Street.

DEVICE FOR MAKING TRACTION ON THE FINGERS *

JOHN A. CALDWELL, M.D., CINCINNATI
Director of the Fracture Service, Cincinnati General Hospital

For reducing fractures of the bones of the forearm and the metacarpals and phalanges, prolonged traction on the fingers is often necessary and it is frequently essential to maintain this traction while a plaster splint is being molded and allowed to set. The method of Böhler [1] is for an assistant to make the traction manually, a mastic varnish having been applied to the fingers to prevent slipping. The disadvantage of any form of manual traction is that it is not steady and uniform because the

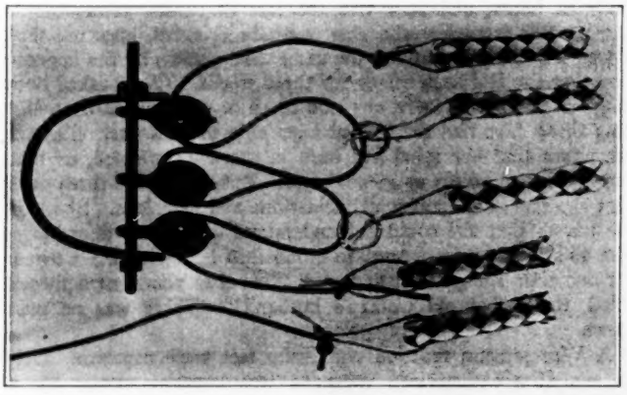

Fig. 1.—Straw grips.

person making the traction becomes fatigued. Soutter [2] has described a device for making mechanical traction by interposing a spring balance between the points of traction, pulling until the desired weight registers on the balance, and then fastening the tractor at that point. Soutter uses a sling with a Delbet knot about the wrist and removes it from beneath the plaster. When traction on the fingers is necessary, adhesive plaster has been used; but this is difficult to apply and remove and is apt to slip.

It occurred to me to employ the "finger traps" used as playthings by children for finger traction. These are diagonally woven cylinders of rattan or straw which, when slipped on the finger, cannot be pulled off since any pull in their long axis causes their diameter to diminish. They can be removed only by loosening the traction and pushing their ends together, when they expand and are easily slipped off. A trial of these proved them most satisfactory except for the fact that they can be obtained in but one size and that size is not large enough to slip over a large finger or any adult thumb. I then learned that a contrivance which works on the same principle is used by electricians to slip over electric cable, by which it can be drawn through a conduit with a wire. These grips are made of soft woven wire and when slipped on the fingers and traction is made they are not uncomfortable. They do not hold quite as firmly as the rattan finger traps, but if the fingers are moist they may be painted with compound tincture of benzoin and then the grips hold quite firmly. They are sold by Kellems Products, Inc., 6 Varick Street, New York.

My method of using them is as follows: An anesthetic is given or in most cases the fracture is rendered painless by injecting a 2 per cent solution of procaine hydrochloride into the fracture after the method popularized by Böhler. The finger grips are then applied with the apparatus illustrated, and a spring balance is attached to this. The elbow is flexed to a right angle, and countertraction is made by a padded sling about

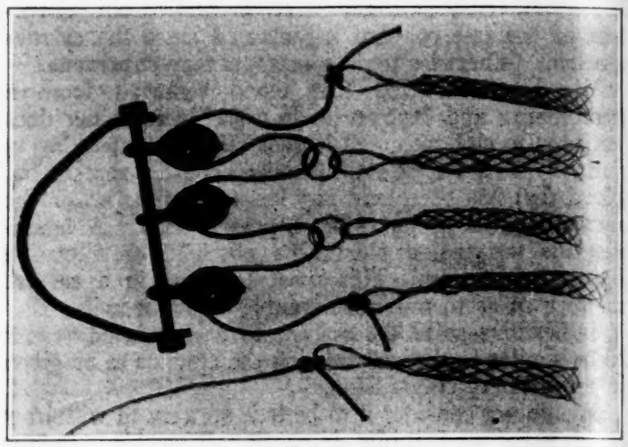

Fig. 2.—Wire grips.

the arm. The cord (a trunk strap with a slip buckle is most satisfactory since it can be secured at any point) is then drawn up until the spring balance registers the desired weight—usually from 10 to 24 pounds (4.5 to 11 Kg.). The cord is then fixed at that point and the pull continued for from ten to thirty minutes. The fragments are then molded or pressed into position and plaster splints are applied directly to the skin. The traction is not released until the plaster splint has hardened. I have left hands in traction with the grips for one hour under 20 pounds (9 Kg.) of traction without causing serious discomfort in the fingers.

Fig. 3.—Apparatus for traction on fingers: The spring balances are between the hand and the upright to the left of the illustration. A separate tractor and balance is used on the thumb.

The finger traps have also been found useful in other ways. They may be slipped on the toes and the foot suspended by them during the application of a cast, and they may be used on the fingers to suspend a forearm or may be attached to a "banjo" splint when it is necessary to make light continuous traction to prevent contractures.

The illustrations show both the straw and the wire grips and the method of use on the fingers.

707 Race Street.

1. Neurosin, J. A. M. A. **64**: 165 (Jan. 9) 1915.

* From the Department of Surgery, Cincinnati General Hospital.

1. Böhler, Lorenz: The Treatment of Fractures, translated by M. E. Steinberg, Vienna, Wilhelm Maudrich, 1929.

2. Soutter, Robert: Reduction of Fractures and Dislocations of Long Bones; Apparatus for Obtaining General Relaxation for Soft Parts, J. A. M. A. **94**: 1547 (May 17) 1930.

OPTIC ATROPHY FROM LEAD POISONING*

R. J. REITZEL, M.D., SAN FRANCISCO

A Negro girl baby, aged 19 months, was admitted to the pediatric service of the John Sealy Hospital, May 15, 1929, because of vomiting, muscular weakness and irritability.

The baby had been delivered at full term by cesarean section. Her weight was 5½ pounds (2.5 Kg.), and her condition was good. She sat alone and began teething at 7 months, talked at 1 year of age and walked at 13 months. Feeding was artificial on a cow's milk formula. Later on she took cereals and cod liver oil. Prior to the present illness, she had always been well. The family history was negative.

Three months before entering the hospital the baby began rubbing her nose with her hands, and began vomiting. The vomiting had no especial relation to meals. Later on there was excessive crying. One month later the eyes "became crossed," she stopped talking, and she was unable to walk on account of weakness. The bowel movements were considered normal in character but during the past month defecation and voiding had taken place without warning.

During the physical examination the baby was never still. She was continually licking her lips and rubbing here eyes. She was well developed and nourished. The mucous membranes showed anemia. The right eye oscillated irregularly up and down and from side to side and was displaced upward and medially. The left eye was partially fixed. The pupils were dilated, were equal, and reacted sluggishly to light; the fundi showed primary optic atrophy. There was slight nuchal rigidity. Knee jerks were absent and the baby could not stand up without support.

Laboratory investigation showed a trace of albumin and many pus cells in the urine. Red blood cells were 2,700,000; hemoglobin, 40 per cent; white blood cells, 26,950; polymorphonuclears, 56 per cent; lymphocytes, 42 per cent; transitionals, 2 per cent. Spinal puncture showed an increased pressure, a clear fluid with 5 lymphocytes per cubic millimeter. Chemical and serologic tests were negative. A tuberculin test, 1 : 1,000, was negative. A routine stool examination was negative.

Brain tumor or tuberculous meningitis was thought to be the possible diagnosis until in checking up the blood smear marked basophilic stippling was noted. This led to further examination and it was found that the urine and feces contained large amounts of lead. An investigation into the home of the baby revealed that she had frequently been put on the porch, which was surrounded by a wooden railing covered with old dried paint. Marks of teeth were found at numerous places. Scrapings of the paint proved to be almost pure lead.

On symptomatic treatment and a high calcium intake, improvement was noted in the general condition so that by August, four months later, the blood picture was normal and the baby began to walk again. No lead was found in the urine or stools, and basophilic stippling was not found in the blood smears. However, the optic atrophy was more pronounced than when first noted. This condition has persisted up to the present time and will undoubtedly be permanent.

COMMENT

Involvement of the central nervous system in lead poisoning in children has been reported by Gibson,[1] Osler,[2] McKahnn,[3] and Thomas and Blackfan.[4] The chief neurologic signs for the most part are rigidity of the neck, retraction of the head, paralysis of one or more of the external eye muscles, and blindness from optic atrophy.

The mechanism for the production of the blindness is not altogether clear. It is thought that there may be a direct toxic action of the lead, which might affect the central nervous system, produce a neuritis, and alter the blood vessels in the retina and optic nerves. Or the optic atrophy might be secondary to the increased intracranial pressure. The spinal fluid is often increased, and relief of symptoms has been reported when the pressure has been relieved. However, the blindness is apt to be permanent when the optic atrophy is marked.

* From the Department of Pediatrics, University of Texas Medical School, and Clinical Pathology Laboratory, John Sealy Hospital, Galveston, Texas.

* Acknowledgment is made to Dr. Boyd Reading, professor of pediatrics, for his permission to report the case, and to Dr. Clarence Sykes, who confirmed the results of the eye examination.

1. Gibson, J. L.: M. J. Australia **2**: 201, 1917.
2. Osler, William: Modern Medicine, Philadelphia, Lea & Febiger, ed. 1, **1**: 108, 1907.
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4. Thomas, H. M., and Blackfan, K. D.: Recurrent Meningitis, Due to Lead, in a Child of Five Years, Am. J. Dis. Child. **8**: 377 (Nov.) 1914.

TORSION OF GREAT OMENTUM

EVON L. ANDERSON, M.D., FORT BENTON, MONT.

F. L. B., a farmer, aged 38, American, single, 5 feet 6 inches (167.6 cm.) tall, weighing 135 pounds (61 Kg.), entered St. Clare Hospital, June 1, 1930, complaining of cramplike pain in the abdomen beginning the day before. His health had always been good. He had measles at the age of 10, and in 1913 fractured the right tibia. This was repaired with a silver plate, which was still in place. He never drank, he smoked moderately, he had always lived in Montana and he never had gonorrhea or syphilis.

The day before admission he arose "feeling fine," had breakfast, finished milking, and went to the granary for a sack of chicken feed weighing 100 pounds. He had the sack on his right shoulder, when a cramp began in his abdomen causing him to sit down. This pain settled gradually to his right side, continuing all next day. It gradually became more severe, so that by the second day it was "unbearable." He took a large dose of epsom salt, which moved his bowels but failed to help the pain. He was unable to sleep and was nauseated but did not vomit.

Portion of great omentum removed.

The patient was rather thin. He lay with the body curved to the right with the right knee flexed. He did not want to be moved. He was in pain, had sweat on the forehead, and was pale. There was no evidence of jaundice. The tongue was coated and the tonsils were atrophic. There were no abnormal pulsations. The rate of respiration was 19. The apex beat was in the fifth interspace. No adventitious sounds were heard and the rhythm was regular.

The right rectus muscle was rigid. The abdomen was markedly tender about McBurney's point; deep pressure over any part of the abdomen caused reference to pain to this point. Hernia was not present; peristalsis was active; no dull areas were noted; no free gas was present.

The urine was normal, with a specific gravity of 1.016 and was alkaline. The temperature (rectal) was 99 F. A blood count showed 17,800 leukocytes.

A diagnosis of acute appendicitis was made.

The abdomen was opened by a low right pararectal incision. The appendix was not acutely inflamed but had a kink in the distal third and evidence of chronic inflammation. The appendix was removed and the stump was invaginated. On exploration a cord-like band was encountered, running across the intestinal coils near the gallbladder. This was followed to the right, and there was liberated a mass the size of a hen's egg which, when brought into view, proved to be a twisted gangrenous omentum. The twisted mass was followed to healthy omentum, and was resected with a small bit of healthy omentum. The abdomen was closed in layers without drainage.

The removed specimen consisted of a portion of the great omentum which had undergone six axial rotations, forming a cord 9 cm. long, and 0.5 cm. in diameter throughout, broadening

into a purplish, foot-shaped mass, 4 cm. from the heel to the toe, 1 cm. thick at its thickest part. It had no necrotic areas. The surface had threadlike adhesion bands about it.

The patient left the hospital, June 15, in excellent condition and feeling fine.

CONCLUSION

1. Torsion of the great omentum unassociated with hernia, adhesion or tumor is rare.
2. A positive diagnosis before operation is difficult.
3. The treatment consists of early operation and resection of the twisted omentum.
4. The mortality rate is almost negligible if the patient is operated on early.

Special Article

THE INDISPENSABLE USES OF NARCOTICS

IN LOCAL ANESTHESIA*

GÉZA DE TAKÁTS, M.D.
CHICAGO

The ideal method of performing operations on the conscious patient without mental or physical discomfort requires a balanced use of sedatives, analgesics and anesthetics. These drugs must be administered with an exact knowledge of their dangers. Fatalities during and after local anesthesia have occurred and are occurring. While not all are avoidable, many of them are. It is my purpose in this article to discuss the use of narcotics in local anesthesia with the least possible danger to the patient.

PREMEDICATION

Premedication to local anesthesia aims to diminish psychic reactions and painful sensations. In minor, ambulatory procedures it is not necessary. Before major surgical operations, the restless night, the fear and anxiety not only exhaust the patient but will cause definite bodily changes.[1] As the patient is usually not in actual pain, sedatives of the barbituric acid series are sufficient. Phenobarbital, 0.5 Gm. (7½ grains), *n*-butylethylbarbituric acid (N. N. R.), 0.2 Gm. (3 grains) and isoamylethylbarbituric acid (N. N. R.), 0.2 Gm. (3 grains), are helpful in producing a light, restful sleep the night before the operation. In the overanxious, hyperthyroid or mentally deranged patient the best drug is his ignorance of the time of operation.[2] Two hours before the operation the dose given the night before is repeated. The routine use of morphine, from 0.01 to 0.02 Gm. (⅙ to ⅓ grain) is not logical. One is frequently impressed by the salivating, nauseated, highly uncomfortable patient arriving at the operating room, worse off for the morphine.

Many attempts, old and new, have been made to induce a light twilight sleep and produce perfect amnesia. Scopolamine-morphine,[3] phenobarbital[4] and other barbituric acid derivatives[5] have been tried. Aside from the difficulty of dosage, these methods constitute more than a simple premedication. These patients are deeply drugged and contradict the true principle of local anesthesia. It must be admitted, however, that there is a definite need for the somnolence of light sleep in restless, unduly anxious patients. The rectal administration of tribrom-ethanol (60 mg. per kilogram of body weight) in the patient's room has been very satisfactory in my experience and is far below the usual anesthetic dose. Small doses of isoamylethylbarbituric acid (15 mg. per kilogram of body weight intravenously) have also been advocated just for premedication.[6]

The use of barbituric acid derivatives before local anesthesia offer some degree of protection against the toxicity of cocaine and its derivatives as shown by adequate experimental evidence[7] and a few clinical reports.[8]

LOCAL ANESTHETICS

All drugs that are capable of producing a block of sensory or motor nerves become toxic when their concentration exceeds a certain level in the blood stream. Toxic reactions will depend on the type of drug used and on dosage, concentration, mode of application, and the rapidity of absorption and of detoxification.

TOXICITY OF THE DRUG

Cocaine was the first real local anesthetic. In spite of continuous attempts, it has not been possible to supplant it entirely with less toxic drugs. Its use should be limited entirely to a surface anesthesia of the eye, nose and larynx. For the anesthesia of the urethra and of joint cavities, procaine hydrochloride substitutes for it perfectly. Cocaine should never be injected into the tissues. In the pharynx, it can be dispensed with. In the eye, concentrations from 2 to 5 per cent are safe. The danger of toxicity is negligible. In the nose, from 5 to 10 per cent solutions, not exceeding 1 cc. (16 minims) may be considered safe. It is realized that many physicians are using far larger doses without apparent harm. Yet in case of a fatality, which occurs year after year in a number of published and in a greater number of unpublished cases, the physician who has not exceeded this dose may justly claim an unavoidable accident. The committee for the study of the toxic effects of local anesthesia[9] strongly advised against the use of cocaine mud and advocated measured solutions of cocaine, stained with fluorescein, to avoid its being injected as procaine hydrochloride.

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* These articles are prepared under a plan of cooperation between the American Medical Association, the Committee on Drug Addiction of the Division of Medical Sciences of the National Research Council, and the Division of Mental Hygiene of the United States Public Health Service. Their object is to reduce the legitimate use of addiction drugs to a minimum by replacement, wherever possible, with other remedies that will accomplish the desired result. The physicians of the United States are the essential group in any such attempt and it is hoped that these articles will be useful to them in their practice. The funds for this work have been donated to the National Research Council by the Bureau of Social Hygiene, Inc.

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Procaine hydrochloride is about one tenth as toxic as cocaine. It has practically eliminated cocaine except for topical applications in the nose. Its maximal permissible dose in man is between 1.25 and 1.5 Gm. The dosage itself, however, compared with other factors to be discussed later, is only one not all-important factor. Therefore so-called maximal doses of pharmacopeias are meaningless.

CONCENTRATION OF DRUG

The same amount of drug in higher concentration is absorbed more rapidly. Every effort should be made to use the minimal effective concentration. This is 2 per cent cocaine hydrochloride for the eye, 5 per cent cocaine hydrochloride for the nose, 0.5 per cent procaine hydrochloride for infiltration anesthesia, and 2 per cent procaine hydrochloride for nerve block.

SITE OF APPLICATION

The drug can be applied on the surface of mucous membranes, injected into the tissues or deposited around or in nerves. Cocaine is used only for surface anesthesia, and even then its use has been eliminated in many continental clinics, where procaine hydrochloride is injected under the mucous membrane to produce surface anesthesia. The infiltration of tissues is undertaken with 0.5 per cent solutions of procaine hydrochloride, not exceeding 250 cc. If larger quantities become necessary, the concentration may be reduced to 0.25 per cent. Conduction anesthesia aims to block peripheral nerves with small amounts of more concentrated solutions. Five cubic centimeters of a 2 per cent solution is used to block a peripheral nerve. The brachial plexus needs 30 cc., and so does the sacral block. Forty cubic centimeters of the 2 per cent solution should never be exceeded. In the spinal canal, 15 mg. of crystalline procaine hydrochloride should not be exceeded. Of the procaine-starch solution,[10] from 30 to 40 mg. can be given in 10 per cent solution, relying on the slower absorption.

RAPIDITY OF ABSORPTION

Slowing down absorption prolongs anesthesia and reduces toxicity. The most important aid is epinephrine in a 1:1,000 concentration. It is added to cocaine in amounts of 15 drops to every 10 cc. For infiltration anesthesia, 10 drops are added to every hundred cubic centimeters. The dose is reduced to 3 drops in hyperthyroid patients.

If procaine hydrochloride is injected intravenously, the drug is immediately present in a toxic concentration in the blood stream. Repeated careful aspirations must be made for blood when vascular areas are injected. Most of the fatalities following local anesthesia are due to intravenous injection. Equally dangerous is the injection of large quantities of procaine into the spinal canal when a sacral or paravertebral block is planned.

Injured, defective mucous membrane seems to absorb the anesthetic more rapidly. Urologists report deaths following dilation of urethral strictures under procaine. Usually the same amount and concentration of the drug was well tolerated a few days before.

Absorption from vascular areas of the face, but particularly from the gums, where the fluid is under great pressure, is more rapid than from a less vascular area. Therefore dentists may encounter reactions from a few cubic centimeters of procaine, which would never give any symptoms elsewhere. The sitting position of the patient may also be a factor in the frequent reactions.

10. Pitkin, G. P.: Controllable Spinal Anesthesia, Am. J. Surg. 5: 537-553 (Dec.) 1928.

DETOXIFICATION

Cocaine and its derivatives are rapidly detoxified, chiefly in the liver.[11] Animals whose livers are damaged by phosphorus or chloroform succumb to one third of the fatal dose of cocaine or procaine hydrochloride.[12] Exsanguinated or cachectic patients may show toxic symptoms on comparatively small doses of procaine. Hence special care should be taken to use dilute concentrations in such cases.

POSTOPERATIVE MEDICATION

The patient should be kept comfortable but not drugged. A mixture of acetylsalicylic acid, 0.5 Gm., amidopyrine, 0.3 Gm. and caffeine, 0.1 Gm., every four hours is very helpful if oral medication is possible. Morphine or opium preparations may be necessary after major operations for the first few nights. Too much opiate will interfere with intestinal peristalsis; too much of the barbituric acid compounds, especially as a hangover from too active premedication, will depress pulmonary ventilation and may result in pulmonary complications. By the addition of a quinine derivative to the procaine solution, a prolonged analgesia of the wound seems possible, which reduces postoperative medication.[13]

TOXIC SYMPTOMS DURING OR AFTER LOCAL ANESTHESIA

The most frequent causes of toxic symptoms are too heavy premedication, error in the concentration of the solution used, inadvertent intravenous or intraspinal injection, and an individual hypersensitivity to cocaine and its derivatives. Whether this is a true drug allergy remains to be shown. The toxic symptoms may vary from a slight pallor and dizziness, nausea and tachycardia, to tonic-clonic convulsions, cyanosis and death. Death is due to a paralysis of the respiratory center and circulatory depression. One can protect the central nervous system with an intravenous injection of sodium isoamylethylbarbituric acid, 0.5 Gm. (7½ grains), at the beginning of the convulsions. Artificial respiration must always be tried.

A peculiar somnolence is sometimes noted during sacral and paravertebral block. Under certain conditions a sedative instead of an excitatory effect takes place. The patients are pale, the blood pressure falls. Ephedrine hydrochloride or sulphate 0.1 Gm. (1½ grains), injected under the skin combats the fall in blood pressure. This drug is also useful to prevent a fall in blood pressure during spinal anesthesia.

The foregoing considerations attempt to emphasize the dangers of using drugs in unnecessarily large doses or heavy concentrations. The fact that ten or even a hundred patients had tolerated an excessive dose only shows the great variation in tolerance to drugs. The hundred and first may be the victim of unjustifiable carelessness or of too much optimism.

122 South Michigan Avenue.

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 11, 1931

DEATHS OF PHYSICIANS PUBLISHED IN 1930

During 1930, the deaths of 2,943 physicians of the United States were recorded in THE JOURNAL, as compared with 2,797 physicians during 1929 and 2,792 in 1928. The list also includes five in the Philippine Islands, three in Hawaii, two in Porto Rico and one in Alaska. Two died in China, two in India, and one each in Africa, Peru, Mexico, France and Hungary. The total number published was 3,036, including Canadians. In 1930 there were obituaries of 80 women physicians and in 1929 there were 65. The graduates of medical schools in the United States for the fiscal year ended June 30, 1930, numbered 4,565. Deducting the number of physicians whose obituaries were published, there was a net addition to the ranks of the profession for the year of 1,622, or a decrease of 27 from 1929.

Ages.—The average age at the time of death of those classified as of the United States was 63.7, a decrease of about one year from the average age of death in 1929, which was 64.9. The oldest was 97 and the youngest was 23. Twenty-three physicians died in the age group 25-29; 56 died between 30 and 34 years of age, 74 between 35 and 39, 118 between 40 and 44, 169 between 45 and 49, 309 between 50 and 54, 352 between 55 and 59, 447 between 60 and 64, 369 between 65 and 69, 404 between 70 and 74, 312 between 75 and 79, 199 between 80 and 84, and 110 at or above 85 years of age. The number of physicians living to be 85 or more in selected states were: California, 12 in a total of 184; Illinois, 14 in 217; Indiana, 6 in 134; New York, 17 in 297; Ohio, 7 in 200, and Pennsylvania, 5 in 220. April was the month of most deaths, with 299.

Accidental Deaths.—There were 130 physicians who died as a result of accidents in 1930, compared with 202 in the previous year. Automobile accidents numbered sixty-six, one more than in 1929. In 1930, deaths from falls numbered twenty-four and were second in the accidental cause group, as they were also in 1929 with sixteen. Eight deaths resulted from gunshot wounds, five from overdoses of medicine, four from drowning, three from burns, three from carbon monoxide poisoning and three from airplane accidents. The remaining seventeen deaths resulted from miscellaneous causes, including suffocation by dental plate falling into throat, injuries received when kicked by a cow, injuries received when struck by a falling tree, and freezing.

Suicides and Homicides.—Sixty-six physicians committed suicide in 1930, nineteen more than in 1929. The method most frequently employed was shooting, which accounted for thirty-three deaths. Cut arteries and poison caused seven deaths each; gas, six; hanging, four; drugs, drowning and phenol two each, and jumping, one. No method was designated in two cases. There were six homicides.

Causes of Death.—Heart disease was the most common cause of death, with 1,059, compared with 902 in 1929. Some contributory causes are included in the tabulation as they have been in former years. A report stating that the cause of death was "chronic nephritis and heart disease" is so published in THE JOURNAL, and is recorded on the statistical charts under both diseases. Of the deaths from heart disease, endocarditis or myocarditis was specified in 324, angina pectoris in 109, and pericarditis in 4. Cerebral hemorrhage was the second most frequent cause reported, with 353 deaths; 29 other deaths were reported due to paralysis. Pneumonia, the third most frequent cause, was reported in 269 cases, and bronchopneumonia was specified in 53. Fourth on the list was nephritis, with 256 deaths, of which 24 were specified as acute nephritis. Cancer caused 242 deaths; the stomach and liver were affected in 54, the intestine in 24, the prostate in 18, the buccal cavity in 11, and in 135 the part affected was not specified. Arteriosclerosis caused 190 deaths; embolism and thrombosis, 98; tuberculosis and uremia, 59 each; diabetes mellitus, 52; septicemia, 50; diseases of the prostate, 43, and cirrhosis of the liver, 37. Ulcer of the stomach caused 28 deaths, and other diseases of the stomach, not including cancer, 7; appendicitis and typhlitis, 25, and other diseases of the digestive system, 23. Nineteen deaths each were caused by pernicious anemia, peritonitis, and diseases of the genito-urinary system, other than those classified elsewhere.

Conditions that caused a few deaths under each head are as follows: cholecystitis, 18; influenza and meningitis, 17 each; intestinal obstruction, 16; diseases of the bones and organs of locomotion, 13; biliary calculi, 11; encephalitis, 9; hypertension and asthma, 8; alcoholism and diseases of the liver, 7 each; brain tumor and leukemia, 6 each. Locomotor ataxia, erysipelas, chronic bronchitis, brain abscess and diseases of the spinal cord were responsible for 5 deaths each; heat exhaustion, hernia and diseases of the nervous system, 4 each; typhoid, pleurisy, drug addiction, carbuncles, Parkinson's disease, Hodgkin's disease, Banti's disease and diseases of the veins, 3 each. Two deaths each

were attributed to acute articular rheumatism, scarlet fever, goiter, amebic dysentery, shock, diseases of the organs of hearing, diseases of the arteries and other diseases of the circulatory system. The following list of causes is given for one death each; bacillary dysentery, aneurysm, yellow fever, sunstroke, malaria, undulant fever, cerebral softening, acute mania, splenomegaly, paresis, Paget's disease, pancreatitis and psittacosis.

Positions.—Among the decedents were 152 who were or had been teachers in medical schools; 239 who served in the World War; 47 veterans of the Civil War, and 39 of the Spanish-American War. Seventy-five had been members of boards of education; 63, members of boards of health; 56, health officers; 29, mayors of municipalities; 27, coroners; 28, members of state legislatures; 20, members of state boards of examiners; 16, druggists; 14, members of the U. S. Army Medical Corps; 11, of the U. S. Naval Medical Corps. Thirteen editors, 13 authors, 13 bank presidents, 12 members of city councils, 8 postmasters, 7 dentists, 6 missionaries, 5 clergymen, 5 judges, 2 justices of the peace and a lawyer were also included.

Association Officers.—The obituaries of former officers of the American Medical Association published during 1930 included three vice presidents, one trustee, nine members of the House of Delegates, seven section officers, and one member of a council. Thirty-six former presidents of state societies died during the year, and one secretary.

BREAST-FED AND BOTTLE-FED BABIES

The belief in the superiority of breast feeding for the well being of infants seems to be so firmly established in the teaching of pediatrics in this country that it requires no detailed defense. The breast-fed baby "not only has a better chance of surviving the perilous first year but of growing to manhood as well." [1] It may as well be frankly admitted, however, that breast feeding has become irksome if not actually difficult for many mothers of the present generation. There is considerable cheer, therefore, in the increasing evidence that artificial feeding can be made far more safe and satisfactory than seemed to be the case in former times. This is not in any sense to be accepted as an argument against breast feeding but rather as a consolation, so to speak, in prospects in which a change in the mode of nutrition of the infant either becomes imperative or is initiated for reasons that need not be analyzed here. One of the latest cheerful indications comes from the department of pediatrics at the Stanford University Medical School in San Francisco, where Faber and Sutton [2] have considered the relative merits of breast feeding and bottle feeding when the latter is carried out under good conditions with the benefit of modern improvements in the care and diet of infants. In their Well Baby Clinic during the past seven years they noted that during the first quarter, approximately, of the first year, breast-fed infants show a significantly better mean rate of gain than properly bottle-fed infants. After the first quarter of the first year, artificially fed infants show a significantly greater mean rate of gain, and this superiority becomes progressively greater up to the time of weaning. Faber and Sutton assert that there is no indication in their cases of increased resistance to infection from breast feeding, but rather evidence of either greater susceptibility or greater exposure, or of both.

Contemplation of these statements at once brings to mind the presumably encouraging environment of the California babies. The conditions favorable to artificial feeding were: an equable climate, conducive to the keeping of milk unspoiled even without ice or mechanical refrigeration, and without the depressing physical effects of extremes of heat and cold; reliable, pure milk; frequent medical supervision of feeding and care, and routine administration at the proper ages of necessary dietary accessories, such as cod liver oil, orange juice and green vegetables. Fresh air and sunbaths were available in abundance. Faber and Sutton insist, however, that most of these conditions can be duplicated in many American communities; but in respect to the usually dependable low mean temperature, which delays the bacterial spoilage of milk without special refrigeration, they had a condition not often duplicated and one that distinctly limits the general applicability of their conclusions in the lower economic levels of society. Indeed, they are convinced that without reliable refrigeration the hazards of artificial feeding, particularly from diarrheal disease, are much greater and the effects on growth less satisfactory.

It matters little that these may be reports regarded by most readers as exceptional and therefore not to be applied without due discount to the usual community. Our objectives in medical progress should be represented by what can be done under favoring conditions. The latter then become the goal of practice. The conclusions of Faber and Sutton form a message of hopeful outlook:

> We believe that the present study gives fairly convincing support to the belief that in the average case breast milk is the best food for infants during the first three months of life, provided the supply is abundant and the progress satisfactory. We further believe that in some, perhaps many cases, but not in the majority, it continues to be the ideal food for a few months more. In the exceptional case, it may continue to be superior to good artificial food for nine or ten months. Further, we believe that up to 9 or 10 months there is no reason for arbitrarily weaning a baby who is making really good progress on the breast. In general, our experience with mothers is that they are willing and desirous to continue nursing their babies as long as the milk supply is fairly good and their health is not seriously impaired, even somewhat beyond the time when the baby ceases to gain satisfactorily. We do not believe that when conditions suitable to good bottle

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feeding are present and when the maternal supply is inadequate and when the baby is failing to show good progress there need be the slightest hesitation after the third month in advising weaning. Further, we believe that when the baby cannot get at least half of his food supply from the maternal breast he should be weaned at once and be spared, with his mother, the annoyances and uncertainty of allaitement mixte.

UPSETTING IMMUNOLOGIC TENETS

The alleged demonstration in 1915 by Ostromyschlenski [1] that diphtheria antitoxin can be synthesized in the test tube without the aid of living cells initiated a radical movement in immunology, challenging most of the historic basic tenets. The latest Russian challenge is by Wygodtschikoff and Manuilowa,[2] who impeach time-honored theories of phagocytosis and current faith in bacterial stability. Their observations, if confirmed, are of direct clinical significance.

During the height of interest in opsonin therapy it was alleged by such leaders as Bordet that no specific adaptation whatever takes place in leukocytes, increased phagocytosis being due solely to humoral factors (opsonins). The Russian scientists criticize the experimental crudities of the time, particularly the historic error of drawing conclusions from seminecrotic leukocytes and from leukocytes suspended in solution of sodium chloride, from which a modern physiologist would not expect normal functions. They therefore repeated the classic Bordet experiments with modern physiologic refinements. They report that while leukocytes from guinea-pigs immunized against *B. typhosus* and other readily phagocytable bacteria show no increased phagocytic power, diphtheria-immune leukocytes, for example, take up from six to seven times the control number of diphtheria bacilli when tested in opsonin-free Ringer's solution. In the presence of normal and immune opsonins, this alleged intrinsic cellular immunity is masked by humoral phagocytosis.

The Russian investigators applied this alleged intrinsic cellular adaptation to a study of altered bacterial specificity. It has long been known that diphtheria bacilli change in morphology, virulence and toxin production if grown in association with streptococci.[3] Using the intrinsic phagocytic index, the Russian bacteriologists allege that the associated streptococci acquire a quasidiphtheria specificity, which "induced" specificity persists for at least twelve generation subcultures after isolation from the initial mixture. Using streptococcus-immune leukocytes, they claim to have found "induced" streptococcus specificity in the associated diphtheria bacilli, and that this acquired streptococcus specificity was present for at least twelve test-tube generations. Similar studies showed "induced" dysentery characteristics in associated *B. coli*, persisting for at least seven generations. The Russian bacteriologists, however, refrain from drawing epidemiologic conclusions from their observations. They do not postulate that accidentally "induced" alien characteristics are the explanation of the apparently spontaneous origin of epidemics, with self-limitation of the epidemic from gradual loss of "induced" characteristics. Similar, though less pronounced "induced" characteristics have, of course, been studied by numerous American investigators, one of the latest being Dawson and Sia's [4] apparently successful "grafting" of a new type-specificity on associated pneumococci.

Equally startling are the immunologic conceptions in the current Russian resurrection of the infectious nature of miasmatic gases. Jermoljewa and Bujanowskaja [5] report that in their hands protein-free distillates from bacteria are specifically antigenic, and they have followed this lead with a study of the antigenicity of numerous volatile amines. With ten amines, group specific precipitins and complement deviating "antibodies" could be produced in rabbits. Thus, antiheptylamine ($C_7H_{15}NH_2$) serum is precipitable with heptylamine and also gives precipitates with hexylamine ($C_6H_{13}NH_2$) and heptadecylamine ($C_{17}H_{35}NH_2$), but no demonstrable reaction with trimethylamine, amylamine, guanidine, diphenylamine or paratoluidine. Their work could be dismissed as pseudo-immunologic reactions were it not for the fact that clinical confirmation of gaseous antigenicity is reported by other investigators. Thus, Berg [6] reports an acquired sensitivity to tar odors, exposures to tar gas causing lacrimation, profuse nasal discharge, typical respiratory distress and the characteristic eosinophilia of bronchial anaphylaxis.

From far-off Japan comes another echo carrying an attack on the basic immunologic hope of a hundred antituberculosis vaccines. It is a well demonstrated fact that animals with local tuberculous foci are resistant to superinfection with tubercle bacilli, fairly rapid lytic changes taking place in the injected bacilli. By our historic tenets this immunity was explained as a result of specific humoral or cellular antibodies, the possibility of a nonspecific process being so remote as not to require experimental disproof. With the collapse of the Ehrlich conception of immunology, however, experimental disproof became necessary. Dr. Hirayama [7] has attempted this work. He infected guinea-pigs and mice with tubercle bacilli and tested them from five to thirty days later with lethal doses of *B. anthracis*, streptococcus, and diphtheria toxin. His tuberculous animals were uniformly more resistant than his normal controls. In one series, for example, six out of nine tuberculous guinea-pigs showed no symptoms or lesions of anthrax, while all his normal controls died of the disease. Less pronounced nonspecific increase in resistance

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2. Wygodtschikoff, G. W., and Manuilowa, N. S.: Ztschr. f. Immunitätsforsch. **68**: 480 (Nov.) 1930.
3. Holman, W. L.: The Newer Knowledge of Bacteriology and Immunology, University of Chicago Press, 1928, chapter 8, p. 102.
4. Dawson, M. H., and Sia, R. H. P.: Proc. Soc. Exper. Biol. & Med. **27**: 989, 1930.
5. Jermoljewa, Z., and Bujanowskaja, I.: Ztschr. f. Immunitätsforsch. **68**: 342 (Oct.) 1930.
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was demonstrable with his other agents. A dozen clinical confirmations of this work are seen in the relatively low influenza morbidity and influenza death rate of tuberculous individuals during recent epidemics. If, as Hirayama's work suggests, resistance to superinfection in tuberculosis is not due to specific antibodies, the logic of antituberculosis vaccines is seriously challenged. The possibility that many of our alleged specific immunities are dominated or, at least, augmented by nonspecific hormonal and cellular reactivities has, of course, not been overlooked by American investigators. Hanger,[8] for example, has recently demonstrated that "chronic infections by a single strain of organism excites cellular reactivity to many strains of bacteria often unrelated biologically—a nonspecific mechanism for localizing infections throughout the body."

The foregoing are typical of the present mutations in immunologic logic, emphasizing the pressing clinical need of basic research along lines suggested by the newer immunology.

Current Comment

THE CALCIUM SALTS IN BONE AND TEETH

The attitude of physiologists toward the function of bone has changed during recent years. Whereas the obvious mechanical functions of maintaining the integrity of body cavities and of acting as levers by means of which the energy of contracting voluntary muscles is rendered effective have long been recognized, with the newer interest in the chemical aspects of physiology there has developed a conviction that the bones are a readily available reservoir of the inorganic salts, which constitute a considerable portion of their structure. Along with this more recent conception of physiology of the bones has come a renewed interest in the chemistry of bone development. Among the several factors now considered important in the calcification of bone is the concentration of bone salts in the blood. The nature of the equilibrium existing between bone and body fluids has consequently received considerable attention. However, though it is recognized that bone contains calcium, phosphate and carbonate ions, the exact nature of the chemical combination and the physical state of existence of the inorganic portion of the osseous tissue is not known. A recent report by Roseberry, Hastings and Morse[9] describes an attempt to determine the chemical nature and physical condition of the calcium salts in bone and tooth enamel by strictly physical methods. Simultaneous spectrograms of the tissue under investigation and of the mineral used for comparison were made with monochromatic x-rays. The distances from the various lines on the photograph to the zero point were measured and the identity or nonidentity of the two substances was thus established. The results indicate that both bone and enamel have a crystalline structure similar to that of the mineral dahlite. Previous chemical analysis has shown likewise that untreated bone is like dahlite in composition. At present, then, it would seem reasonably justified to represent the calcium salts of bone as the double salt $CaCO_3.nCa_3(PO_4)_2$, where n is not less than 2 or more than 3. These observations will have an influence in further evaluation of both the chemical and the biologic factors in bone calcification and will doubtless lead to a better understanding of this intricate and important process.

8. Hanger, F. M.: Jour. Exper. Med. **52**: 485 (Oct.) 1930.
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Association News

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Twenty-Seventh Annual Meeting, held in Chicago, Feb. 16, 17 and 18, 1931

DR. W. M. ENGLISH, Brockville, Ont., in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 16—MORNING

CARE OF THE MENTALLY ILL IN THE UNITED STATES

Mental Health as a National Problem

DR. RAY LYMAN WILBUR, Washington, D. C.: This article appeared in full in THE JOURNAL, March 28, page 994.

Federal Activities in the Care of the Mentally Ill

DR. WALTER L. TREADWAY, Washington, D. C.: The increase in the number of federal employees during the past thirteen decades has expanded more than 400 times as fast as the growth in the general population. The present functions of the federal government involve an intricate maze of activities and interests, represented by an expenditure last year of almost four and three quarters billions of dollars, equal to a per capita expenditure for the entire population of more than $38, or more than nineteen times the per capita expenditure in 1800. These facts serve to dramatize what the present federal government involves in organization. When one attempts an analysis of the federal activities with reference to the care of the mentally ill, no steady growth in the evolution of policies and facilities are found comparable to the situation in the several states where unity of local opinions and customs in these matters have become crystallized into law and regulation. Of the ten executive departments of the government, eight have functions that are directly and intimately concerned with the problem of mental diseases and mental disorders.

The medical agencies concerned with the federal activities respecting the mentally ill may be briefly enumerated: The war and the navy medical corps are concerned with the recognition and exclusion from enlistment of mentally disabled recruits, with the medical survey, temporary care, transfer, retirement and discharge from the military forces of the United States of those with mental diseases and mental disorders. The insane of the army, navy and marine corps are entitled to treatment at the Government Hospital for the Insane in Washington. The care of the insane in the Philippine Islands and in Porto Rico comes within the purview of the activities of the department of health or the commissioner of health of these insular possessions. The insane in the Virgin Islands until January 30 of the present year were administered by a medical officer of the navy, and the hospital for the insane in the Panama Canal Zone is administered by a medical officer of the army detailed for that purpose. The United States Public Health Service performs the medical work for the State Department incident

to issuing immigration visas abroad for prospective immigrants; for the Department of Labor incident to the enforcement of the foreign immigrant laws at ports of entry; for the Department of Justice incident to the direct supervision and furnishing of medical and psychiatric services in federal penal and correctional institutions; for the Department of the Interior incident to the general supervision of the hospital caring for a portion of the American Indian insane population; the supervision of the hospital care of the Alaskan insane; for the Federal Employees' Compensation Commission incident to the general direction of its medical work; and research studies and investigations incident to mental health problems.

The estimates made in 1919 of the potential mental and nervous diseases resulting from the World War have stood the test of time. In that year it was estimated that ten years later the potential beneficiaries of the government for all neuropsychiatric disabilities would aggregate about 58,000 individuals and that approximately 12,000 hospital beds would be required for this class of illness. The original Veterans' Act has since been amended and revised so that, in addition to the war connected disabilities, all forms of illness among ex-service men and women may be treated in government hospitals irrespective of their service connection, provided beds are available. These privileges have been extended also to veterans of the Spanish-American War, of the Philippine insurrection, and of the Boxer rebellion. The rapid growth in hospital facilities for ex-service men and women has been fraught with many difficulties. Since March, 1919, until Jan. 1, 1931, the hospital facilities for mentally disabled veterans grew from practically no government-owned beds, except St. Elizabeth's Hospital, which admitted more than 1,800 persons from the military establishments during 1919, to nineteen special institutions representing 12,882 beds. The Veterans' Bureau has under hospital care approximately 15,000 persons with mental and nervous disorders, and of these about 14,000 are psychotic. Of the psychotic cases, approximately 11,500 are in special hospitals operated by the Veterans' Bureau, 1,280 are in civil state hospitals, and the remainder are in other government-owned institutions. The simplification of methods leading to the admission of insane persons to veterans' hospitals has demonstrated that such cases can be treated and cared for without the imposition of a legal disability. This practical demonstration is a contribution to the public care of the insane in the United States.

The first contribution of the Public Health Service in the field of mental health had its inception in 1875 when, by a decision of the Supreme Court, all state laws relating to foreign immigration were declared unconstitutional and the authority for the regulation of foreign immigration was declared vested in the federal government. It was not until 1882, however, six years after state regulation was declared unconstitutional, that the first federal immigration law was enacted. Our changing immigration policy inaugurated by the per cent limit plan of restriction provided in 1924 for a system of consular inspection of prospective immigrants in countries of origin. During the first year of operation after the passage of the act of 1924, physically and mentally disabled immigrants continued to arrive at ports of entry in the same proportions as before. Through invitations of the British and Irish Free State governments, officers of the Public Health Service were stationed in 1925 at seven American consulates in Great Britain and Ireland for the purpose of medically examining prospective immigrants who apply for American immigration visas. On Jan. 1, 1931, this work had extended to sixteen countries, thirteen of them in western Europe, involving thirty-five stations and forty-two officers. During the last fiscal year (1928-1929), seven out of every thousand prospective immigrants examined abroad were denied permission to emigrate to the United States because of mental disorders.

In 1929, Congress authorized the establishment of two institutions for the confinement and treatment of persons addicted to the use of habit-forming narcotic drugs who have committed offenses against the United States, and the Public Health Service was designated as the federal agency to administer these institutions. It assumed this function, July 1, 1930, and is now assembling personnel for the work. Medical units have been established at five of the six existing prisons.

To summarize, one may call attention to the fact that the standards of care offered the mentally ill wards of the federal government are variable, and greater coordination of effort and more uniform standards might be established and maintained.

State Institutions and Their Relation to Medicine in General

DR. SAMUEL W. HAMILTON, White Plains, N. Y.: Mental hospitals usually are the property of the state and fully maintained by the state. This is the greatest medical enterprise of the state. The services of the state hospital to physicians may be enumerated thus: 1. Spreading knowledge of mental disease. 2. Formulation of treatment programs for patients in the hospital or at home. 3. Consultation service in the mental hospital by outside practitioners and in the general hospital by state hospital psychiatrists. 4. Holding meetings for medical societies, health officers and the like. 5. Training of medical students. 6. Educating nurses. 7. Providing psychiatric social service. 8. Exploration of possible preventive work. 9. Laboratory aid. 10. Physical therapy and other special forms of treatment, such as malaria for dementia paralytica. 11. Excursions into any emergency type of hospital work.

DISCUSSION ON PAPERS OF DRS. WILBUR, TREADWAY AND HAMILTON

DR. ADOLF MEYER, Baltimore: It is a great satisfaction that, before an organization which deals with shaping the thought and policies in the coming generations of physicians, the question of the care of mental disorders has been taken up. That the United States government and those interested in the work of state institutions should have had the first voice is another point to be greatly welcomed. There has been a tremendous gain through an effort on the part of those who had the opportunity to draw on public thought, public leadership and public funds. It has become obvious under that leadership a great deal has been achieved that seemed to be impossible. I was glad to hear Dr. Hamilton say that a great deal was achieved by having the public health officers interested in the care of the mentally deranged pending commitment. I think that contained an element of wisdom of the utmost importance and of great practical value. In view of that tremendous task which reaches way into the conscience of administration and legislation in this country, if for nothing else because of the sentiment connected with it, and in view of the tremendous obligation the veterans' service has to create a sense of discipline and order and hopefulness where perhaps one deals with an exceedingly complex situation, I think there again is a source of activity that will radiate, that will reach the public, but only in the measure as the medical profession at large will give it support. Psychiatry today is not the psychiatry that most of us heard of when we went to medical school. That the medical profession has fared badly at the hands of some of us teachers is something that ought not to be taken revenge on. I think it is a good thing to recognize that there were beginnings in everything, and I hope there will be more and more beginnings and fruitions.

DR. WILLIAM A. WHITE, Washington, D. C.: The hospitals for mental disease will function effectively in the community largely dependent on the cooperation and the sympathy and the understanding of the medical profession as a whole in that community. All are committed to the fact of the significance of the autopsy, checking up the diagnosis and telling where the mistakes were made. There is one thing which the mental hospital can do that is parallel to that and which the medical profession does not appreciate. Most of the patients that come to the mental hospital are people who have been getting ill for sometimes twenty, thirty, forty years; they are end-results of long periods of increasing maladjustment due to defective personality make-up that started early in life. A large number of those people have been through the hands of innumerable practitioners of medicine and various specialties. For example, a woman has had her tonsils and her teeth out, a kidney sewed up into place, the uterus, the ovaries and the tubes removed and the appendix extracted, and she had gone through a series of major surgical operations. The last man who can't cut out anything more throws up his hands and she gets into a state hospital. Why isn't that a magnificent place to study one's

mistakes, what has been accomplished and wherein one has failed? Why isn't it a better place than the autopsy room? The long history of that patient, going back twenty or thirty years, is marvelously revealing, and instead of autopsy material let it be called biopsy material. To find out what happens to all one's patients will be a source of cooperation that will be of advantage to everybody.

DR. W. A. BRYAN, Worcester, Mass.: One of the great drawbacks and the thing that has kept psychiatry back has been the isolation of the mental hospital. The mental patient in most instances is the only patient in the world who has no choice whatever as to who shall take care of him. He is committed to a state hospital and he leaves the man in whom he has the greatest amount of confidence, who rarely sees him again. He is turned over to new men, bringing with him all the antagonism that he has built up against society. Naturally, with that antagonism existing, the state hospital is in a difficult position and the patient in a worse one. Why can't the physician from the community, particularly the physician specializing in psychiatry, have access to the state hospital? Why can't the man take care of his own patient rather than have the close corporation that the state hospital has been for a hundred years?

DR. GEORGE B. LAKE, Chicago: If anything in the way of mental prophylaxis is to be accomplished, the people of this country will have to be trained so that physicians can talk about their mental condition with the same freedom and without arousing any more resentment than when they talk about the teeth or the tonsils. If mental diseases are to be prevented and treated satisfactorily, they must be recognized in their incipience, the same as many of the other chronic conditions.

DR. W. H. MARSHALL, Flint, Mich.: For several years I have been director of the medical service of a general hospital. I soon found that a considerable proportion of the patients admitted to our service needed psychiatric care. Three years ago the hospital board set aside twenty-five beds for psychiatry and gave a half-time man. The beds were filled immediately. I do not think that mental diseases ought to be far removed from the general hospital. They develop right in the hospital. As a result of our establishing these mental wards in our general hospital, there is a demand for a mental hygiene clinic. Thus one step leads to another. Psychiatry should not be permitted to get entirely away from the general hospital.

DR. C. B. FARRAR, Toronto: Psychiatry not only should not get away from the general hospital, but it should have its birth and its bringing up there. No general hospital is properly fulfilling its functions that hasn't a psychiatric ward and psychiatrically trained nurses to do a great deal of the work that is now left to be done hit or miss by the practitioners in the community or is postponed indefinitely.

DR. C. MACFIE CAMPBELL, Boston: One of the greatest difficulties has been that those working in this field have, through circumstances, sometimes had their medical interests dulled. They have been forced, for instance, in the Veterans' Bureau, to consider to an unnecessary degree the question of compensation. In large state hospitals they have had their time taken up largely with problems of economics and administration. Therefore the psychiatrist has had difficulty in remaining a doctor pure and simple. It is the job of the individual physician and perhaps of his medical school to see that he maintains the same interest in his specialty with which he entered it. Medical schools can do a great deal to see that a man enters psychiatry with the correct attitude, and perhaps they may do something through graduate courses to help him maintain his professional keenness. It is when the federal and the state and the municipal authorities realize the correct rôle of the medical man and are willing to keep him free from unnecessary burdens of administration, and when the medical man keeps in close contact with the special work of his fellows, that there will be an opportunity of raising the whole level of psychiatric work throughout the country.

DR. SAMUEL W. HAMILTON, White Plains, N. Y.: I wish to add merely, that through the interest shown by the American Medical Association it is going to be possible for state hospital men to do things that they have not always been able to do.

FEBRUARY 16—AFTERNOON

DR. WILLIAM A. WHITE, Washington, D. C., in the Chair

MENTAL HYGIENE

The Rôle of the State Hospital in Mental Hygiene

DR. J. ALLEN JACKSON, Danville, Pa.: This article appeared in full in THE JOURNAL, March 28, page 1000.

Rôle of Community Clinics in Mental Hygiene

DR. GEORGE S. STEVENSON, New York: This article appeared in full in THE JOURNAL, March 28, page 997.

Child Guidance Clinics

DR. LAWSON G. LOWREY, New York: The factors that are involved in the causation of difficulties in behavior can be classified in five rather useful groupings. In the first group I shall place the gross mental deviations, the rarely occurring psychosis in the child, the feebleminded. Incidentally, it is only rarely that feeblemindedness alone is enough to account for the type of behavior the individual shows. This particular group, calls primarily for the treatment efforts of the expert. In the second group I should place the gross physical deviations and point out here again that in crippled children, whether the crippling is of muscle masses or of the heart or what-not, there are two factors to consider: the direct loss in reactive capacity, and the psychologic reaction to the limitations in competition which the physical deviation imposes. Here again, for the most part, the problem is one of expert treatment. In the third group are the neuroses or the psychoneuroses, namely, rather definite pictures falling into the ordinary type and classification, definite, recognizable, and to be treated in the way that neuroses in any other individual adult, for instance, would be treated. These first three groups all call for expert attention and frequently for some varieties of indirect manipulation.

For the fourth group I find no better name than the conflicts and complexes more or less inevitable in all of us in view of the fact that we do have drives leading in different directions in our own personal make-up and that many of the drives which the human individual has are contrary to group thinking, group convention, group law, and these conflicts and complexes represent, so to speak, the common meeting ground of many different types of technics. It isn't always necessary to have a psychiatrist to deal with the conflict. It isn't always necessary for anything but time to do anything about a complex. After all, most of us manage to achieve some sort of compensation in our lives as we go along. We achieve some sort of balance in our personality, some maturity in point of view, some emotional poise. We manage in some way to make a fairly successful adjustment to life whereby we don't do too many things that distress other people or at least we don't have any gross signs of failure of social adaptation. Here child study groups and church and education, the law, medicine, psychiatry, psychology and so on have definite contributions to make.

The fifth group is the group of faulty training in which one has to do not so much with complexes and conflicts as with an actual state of ignorance in the individual who is most important in the life of a child as to when to do certain things, what to do to achieve certain results, and the meaning of certain minor deviations. This is, in a sense, the simplest of all groups with which to deal, provided one is able to cast the material having to do with the general laws of child development, the general laws of child training, in a form that can be grasped by the parent. It is here that organizations such as the Child Study Association of America have made some real contributions.

In relationship to this I have also come to the conclusion that the treatment of any one of these problem situations should be kept at the simplest possible level that will achieve the results one desires. In my opinion, diagnosis is of no value unless it leads to treatment. In other words, the clinic should be focusing on problems of treatment, whether it is doing treatment directly or not. In approximately half of the cases the social worker and the psychiatrist share the responsibility for the treatment, the social worker in the manipulation of environment factors, the psychiatrist in direct contact with the child, sometimes with individuals in the family. Something more than a

quarter of our cases are cases in which the social worker carries the responsibility for treatment with the psychiatrist acting only as consultant from time to time, and something less than a quarter of the cases are carried with the psychiatrist primarily responsible for the treatment, with the social worker doing only minor points as they arise. A child guidance clinic is a clinical organization for the study and the treatment of behavior and personality problems in children, hoping thereby not only to clear up the present situation but to prevent the development of more serious situations in the future.

Work of the National Committee for Mental Hygiene

DR. C. M. HINCKS, New York: During the first ten years of its existence, the National Committee for Mental Hygiene devoted itself chiefly to a consideration of the problems connected with the major psychoses and mental defect. Surveys were conducted in parts of the United States to determine the status of existing facilities for the treatment and control of these disabilities. As a result of such studies mental hospitals were improved, training schools for mental defectives were made more efficient and an impetus was given to the creation of supervisory arrangements in the general community. The last ten years has been a period in which the national committee has broadened its scope. Attention has been directed also to less pronounced forms of mental illness—to the psychoneuroses, to twists and distortions of personality, and to behavior problems. The reason for a shifting of emphasis on the part of the committee to these milder conditions was that they are more widespread than major mental disorders. Within the last few years the national committee has been directing its attention more and more toward the prevention of mental disabilities and the enrichment of human life.

A significant achievement of the committee during the twenty-one years of its history has been the intriguing of public interest in matters of mental hygiene concern and in giving people in general a sense of partnership with scientific leaders in mental health work. Of equal importance has been the stimulatory activities of the committee in connection with government policies and expenditures. There has been followed the plan of demonstrating to governments effective mental hygiene procedures and of urging the institution and financing of adequate programs. The present program of the committee includes the following activities: promotion of psychiatric and mental hygiene research; improvement of medical education with regard to mental hygiene and psychiatry; integration of mental hygiene principles into the practices of education, social work, nursing, religion, public health and industry; securing a more effective working relationship between law and psychiatry in dealing with the problems of delinquency; improvement of facilities for the treatment and control of those suffering from mental disabilities, and strengthening mental hygiene clinic organization. Emphasis is being placed on the training of personnel because the demand for suitable workers far exceeds the supply.

The committee is attempting to cooperate with those in charge of medical education so that every student on graduation will appreciate the significance of personality and environmental factors in connection with medical cases. The National Committee for Mental Hygiene is attempting to mashal the forces that can contribute to the conservation of mental health. There is required in this regard the whole heated, intelligent cooperation of the medical profession.

DISCUSSION ON PAPERS OF DRS. JACKSON, STEVENSON, LOWRY AND HINCKS

DR. CHARLES W. STONE, Cleveland: Any health campaign must be based on an educational program, which should be largely informative in character, and in this instance to be fully informative much additional data must be collected. It is only recently that an annual census of mental patients has been inaugurated by the U. S. Bureau of the Census. Education, like natural growth, is a gradually evolving process. The aim should not be at some method of standardizing educational efforts in mental hygiene. To attempt to outline too strict a standard line of procedure in this type of educational endeavor is to risk drawing erroneous conclusions from perfectly true data. To support Dr. Jackson's contention relative to the importance of mental hospitals in education, one need only examine what is being done by some hospitals. I should like to point out one instance. A superintendent of one of our state hospitals, among other duties is an instructor in psychiatry in the school of medicine in his community; he is an instructor in abnormal psychology in the department of psychology, and he is a lecturer on mental diseases to all the general hospitals of his community. During 1930, for medical students and nurses he conducted a total of sixty clinics for this group of individuals. He stated that each year more than 1,000 individuals who later on become doctors, teachers, social workers, and the like, go out into the community to leaven through their duly acquired knowledge the situation as it exists in most communities. If effective medical leadership in this movement is to be secured and maintained, there must be a well informed and enthusiastic profession in support. It is therefore gratifying that the American Medical Association is planning to devote some of its energies to such a cause.

DR. THEODORE DILLER, Pittsburgh: I have followed these movements with a great deal of interest and with considerable doubt as to the feasibility of the programs. I see little that a practicing neurologist and psychiatrist such as I am can do for the prevention of mental disease. Practicing neurology and psychiatry in a private way is different from attempting some of the things portrayed here this afternoon. We can't, according to our ethics and our ideas of propriety, go into a place and force our services on people. There are a great many people who need us who don't send for us. If I were sent for in some cases I might do some good in the prevention of mental disease; but I am not sent for. It is hard to prove that one has prevented insanity. I can see how in some of these child guidance clinics something might be done. I can see, about all these movements, that we have gained immensely. We have done a great deal in getting an enlarged interest in this subject. We have shown the medical profession that this is not a subject for neurologists and psychiatrists alone. It concerns the whole profession and leaders in business, manufacturers, employers of labor. I have doubts and some misgivings. Some of them are slightly evaporating now, but nothing can be done without enthusiasm.

DR. HANS DEUTSCH, Chicago: There is a great lack of understanding of medical psychology. I know of no school except one in which it is handled. It should be presented to students in such a way that they will recognize that every symptom carries a certain psychogenic factor and that the disease for every individual is to him an experience. The physician not only must understand the symptom of the disease but must evaluate that which the patient experiences. If a course is created under this title I am sure there would be a much greater understanding of the problem of mental hygiene than exists at present.

DR. M. A. TARUMIANZ, Farnhurst, Del.: In Delaware, about two years ago, a bill was presented to the legislature and today it is a law that mental hygiene is established under the direction and control of the state hospital. In conjunction with it a psychiatric observation clinic was established which is the clearing house for all mental cases, especially the incipient. In the last two years our mental hygiene clinic has examined and adjusted over 2,000 school children who were three or more years retarded.

DR. JAMES L. MCCARTNEY, Hartford, Conn.: Unfortunately, much of the mental hygiene work that has been done over the United States has been tied up primarily with general welfare rather than with health. In Connecticut an attempt has been made to tie up mental hygiene definitely with general health. I think that mental hygiene has been somewhat in error in putting emphasis on the symptoms of maladjustment rather than on normal development. An attempt has been made to educate the public to normal development rather than to emphasize problems. It is hoped that, by sending out the possible norms of development to the parents, they will look to normal rather than to abnormal development. As an experiment which I hope the psychiatrist will comment on, a chart of normal development is being sent to all parents each month with the birth certificate. The first problem is to educate the parent before the child can possibly be readjusted.

(To be continued)

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:45 on Tuesday, 9:15 on Thursday and 10:30 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

April 13. Something I Ate.
April 14. How Sensitive Are You?
April 16. Children Who Might Live.
April 18. Shopping for the Family Physician.

Five minute health talks may be heard over the Columbia Broadcasting System daily, except Sundays and holidays, from 12 to 12:05 p. m. Central Standard Time.

The program for the week is as follows:

April 13. Teeth and Vitamin D.
April 14. Filling Foods.
April 15. Saying What We Mean in Medicine.
April 16. Saying What We Mean in Medicine.
April 17. Golf, Glasses and Glare.
April 18. Sewage Disposal for the Country Home.

CONTRIBUTIONS FOR MEMORIAL SALON IN PERSHING HALL

The sum contributed this week to the Pershing Hall Memorial in Paris brings the total to $2,303.60. A list of those who have contributed during the current week follows:

A. O. Tucker, M.D., Seattle
L. T. Gager, M.D., Washington, D. C.
H. T. Cuming, M.D., Pace, Miss.
Emor L. Cartwright, M.D., Fort Wayne, Ind.
F. R. Hook, M.D., Brooklyn
Arthur C. Dean, M.D., Hot Springs, S. D.
J. B. Pollard, M.D., Port Au Prince, Haiti

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bill Enacted.—S. 75 requires every physician, surgeon and nurse or hospital attendant called on to treat any person for gunshot wounds, knife wounds or other material injuries that may have resulted from a fight, robbery or other unlawful act to notify immediately certain police authorities.

ARKANSAS

State Medical Meeting at Texarkana, April 21-23.—The fifty-sixth annual session of the Arkansas Medical Society will be held at Texarkana, April 21-23, with headquarters at the Grim Hotel and under the presidency of Dr. Edward E. Barlow, Dermott. Included in the preliminary program are papers by Drs. Ralph A. Kinsella, St. Louis, on "Condition of Peripheral Vessels in Hypertension"; Homer J. Dupuy, Jr., New Orleans, "Clinical Significance of Dysphonia"; Joseph Hoy Sanford, St. Louis, "Obscure Abdominal Pain, Importance of Careful Urinary Tract Investigation," and Ira H. Lockwood, Kansas City, "Radiation in Carcinoma of the Breast." Dr. Augustus G. Lee, Texarkana, will give the address of welcome for the Miller County Medical Society. Motion pictures on the human heart will be given Tuesday, and on "The Treatment of Normal Breech Presentation," Thursday. The woman's auxiliary will meet at the same time, with headquarters at the Hotel McCartney.

CALIFORNIA

Bill Passed.—S. 930, proposing to make the sale or distribution of any fluidextract of jamaica ginger or any preparation or compound containing triorthocresyl phosphate unlawful, except on the written order or prescription of a licensed physician, has been passed by the House and the Senate.

Bills Introduced.—S. C. R. 25 and A. C. R. 18 propose to authorize the appointment of a committee to consider and recommend the enactment of effective laws governing the traffic in narcotic drugs. A. 477, to amend the law creating in the state library a state medical library, proposes to put the state medical library under the direction of the regents of the University of California and to authorize the establishment of branch libraries in San Francisco and Los Angeles.

Summer Graduate Courses.—The University of California Medical School will offer summer courses for graduates in medicine, June 8-20. Instruction will be given in general medicine, general surgery, otorhinolaryngology, genito-urinary diseases, tumors, roentgenology, pediatrics, circulatory diseases, laboratory diagnosis, pathology, neuro-otology and operative technic. There will also be combined rounds of the departments of medicine and surgery on Wednesday mornings, daily noon lectures, and clinicopathologic conferences, open to the medical public without charge. Dr. John Homer Woolsey is in charge of summer graduate courses.

CONNECTICUT

No Typhoid Deaths in Bridgeport.—Bridgeport, with a population of nearly 150,000, reported no deaths in 1930 from typhoid, although there were nineteen cases of the disease. The greatest number of cases (thirty-eight) for any year was reported in 1915. The following year there were thirty-five cases, but the death rate was the greatest in the history of the city, eleven persons dying.

GEORGIA

Trachoma Clinic at Bainbridge.—The U. S. Public Health Service, the Georgia State Board of Health and Decatur and Mitchell counties are sponsoring a free trachoma clinic at Bainbridge. The clinic will last through July, it is said, appropriations having been sufficient to maintain the free service for six months.

Society News.—Dr. Hugh H. Young, Baltimore, addressed the Dougherty County Medical Society, in February, on surgery of the prostate.——Dr. George F. Eubanks, Jr., addressed the Fulton County Medical Society, March 19, on "Some Remote Manifestations of Rectal Disease."——The Ninth District Medical Society was addressed, March 18, by Dr. Allen H. Bunce, Atlanta, among others, on diagnosis of abdominal conditions.

ILLINOIS

Bills Introduced.—S. 382 and S. 383 propose to create a board of chiropractic examiners and to permit licensed chiropractors to practice chiropractic and obstetrics. Chiropractic is defined as the science of locating and adjusting subluxations of the articulations of the human spine and its adjacent tissues. S. 389 proposes to make the incurable insanity of either spouse a cause for divorce. S. 390 proposes to make it unlawful to convey or to attempt to convey into any penal institution any narcotic or drug intended for a prisoner confined therein.

Society News.—Dr. John A. Wolfer, Chicago, addressed the Decatur Medical Society, March 18, on "New Conceptions of Gallbladder Surgery."——Dr. Samuel E. Munson, Springfield, spoke on hypertension before the medical societies of Richland, Wabash, Lawrence and Crawford counties, at Robinson, March 12.——Dr. Lionel Sinclair Luton, St. Louis, conducted a heart clinic, and Dr. James F. McFadden, also of St. Louis, gave a clinical lecture on "Postepidemic Encephalitis" at the Union County Medical Society, Anna, March 12.——Drs. Stewart William Harrington and Carl M. Anderson, Rochester, Minn., addressed the Winnebago County Medical Society, Rockford, March 3, on surgery of the chest and sinus infection, respectively.——Dr. Frederick H. Falls, Chicago, addressed the McLean County Medical Society, Bloomington, March 10, on "Use of Local Anesthetics in Gynecological Operations."——Dr. Alfred A. Strauss, Chicago, delivered an address on "Surgical Conditions of the Abdomen, Especially the Gallbladder and Colon" at the Vermilion County Medical Society, Danville, March 3.——Dr. Gilbert Fitz-Patrick, Chicago, discussed education of the public concerning cancer, and Dr. Albert C. Broders, Rochester, Minn., grading and grouping types of carcinoma, before the La Salle County Medical Society, Ottawa, March 20.——Dr. George K. Fenn, Chicago, addressed the Will-Grundy Counties Medical Society, March 25, on "Subacute Bacterial Endocarditis."——Dr. Karl A. Menninger, Topeka, Kan., addressed the Peoria City Medical

Society, April 7, on "Suicide—A Psychological and Psychiatric Problem."——Dr. Aloysius J. Larkin, Chicago, addressed the Rock Island County Medical Society, March 11, on radium.

Chicago

Personal.—Dr. and Mrs. Isaac Sher celebrated their golden wedding anniversary, March 15; Dr. Sher has practiced medicine on the west side for forty years.——Dr. William Allen Pusey left for Mexico City, March 21, to discuss plans for Mexico's participation in the Century of Progress Exposition, to be held in Chicago in 1933.

Society News.— Dr. Frederick W. Slobe addressed the Chicago Society of Industrial Medicine and Surgery, April 1, on "Bacteriophage Therapy in Pyogenic Infections," and Dr. Maurice A. Bernstein, "Synovectomy of the Knee Joint in Certain Forms of Arthritis," illustrated.——Drs. Mary A. M. Lee and Margaret W. Gerard addressed the Chicago Council of Medical Women, April 3, on "Emotional Instability in Children" and "Mental Hygiene in Students at the University of Chicago," respectively.——Dr. Dean Lewis, Baltimore, among others, addressed the Chicago Surgical Society, April 3, on "Congenital Arteriovenous Communications."——Dr. Thomas C. Galloway, Jr., Evanston, Ill., addressed the Chicago Laryngological and Otological Society, April 6, on "Treatment of Carcinoma of the Esophagus."——Dr. Maud S. Abbott, assistant professor of medical research and curator of the medical museum of McGill University, Montreal, addressed the Medico-Historical Club of the College of Medicine, University of Illinois, April 8, on "Sir William Osler, Biographical Outline and Personal Recollections."——The Chicago Medical Society will be addressed, April 15, among others, by Drs. Eloise Parsons on "Analgesia in the First Stage of Labor with Special Reference to Oral Use of Sodium Amytal"; George E. Hudson, "Scarlet Fever Immunity and Streptococcic Puerperal Infection," and Morris Edward Davis, "Abruptio Placentae."——Iopax in the diagnosis of renal tuberculosis was the subject of Dr. Royal W. Dunham, Ottawa, Ill., among others, before the Chicago Tuberculosis Society, April 9.

INDIANA

Bill Enacted.—H. 220, providing for the sexual sterilization of idiot, imbecile and feebleminded inmates of state institutions, has become a law.

A Secretary for Forty Years.—Dr. Wilson T. Lawson, Danville, began his fifty-fourth year in the practice of medicine, March 1. He has served as health officer of Danville for forty years, it is reported, and is now on his third term as county coroner. Dr. Lawson, who is 80 years old, has been secretary of the Hendricks County Medical Society for forty years; the members dispensed with election last October and installed him in that office for life.

Public Lectures at Fort Wayne.—A series of lectures on medical topics given by members of the faculty of the University of Indiana under the auspices of the university's extension division is in progress in Fort Wayne. Coming lectures and speakers are "Heredity in Man," Fernandus Payne, Ph.D., Bloomington, April 13; "Mental Health and Behavior" and "Mental Hygiene in Everyday Life," Dr. Helen P. Langner, Indianapolis, April 20 and 27, respectively. Among previous lectures have been "Emotion as a Cause of Illness," Dr. Charles P. Emerson, dean of the school of medicine; "Bacteriophage," Dr. Thurman B. Rice, associate professor of bacteriology and public health; "School Responsibility of the Medical Profession," Dr. Burton D. Myers, dean of the School of Medicine at Bloomington, and "The Involuntary Nervous System," William J. Moenkhaus, Ph.D., head of the department of physiology.

IOWA

Bill Introduced.—S. 404 proposes that in workmen's compensation cases either party on written notice may elect to take the deposition of a witness if the testimony of such witness is desired to show the physical condition of the injured party.

KANSAS

Society News.— Drs. G. Wilse Robinson and Ralph W. Holbrook, Kansas City, addressed a recent meeting of the Central Kansas Medical Society in Hays on dementia praecox and medical economics, respectively.——Dr. Daniel V. Conwell, Halstead, addressed the Clay County Medical Society, February 11, on anterior poliomyelitis.

State to Distribute Vaccines.—Through a fund of $25,000 appropriated by the legislature, diphtheria antitoxin, smallpox and typhoid vaccines will be distributed free throughout the state during the next two years, it is reported. Of the total appropriation, $5,000 is available at once and $10,000 will be available for each of the two fiscal years beginning July 1, 1931 and 1932.

Bills Enacted.—The following bills have become laws: S. 341, providing that the fee for reciprocal medical registration shall be set by the board of medical examiners but shall not be less than $25, and if a certificate on reciprocal registration is denied, $10 of the fee shall be retained by the board, and H. 141, providing that a divorce may be had for the incurable insanity of a spouse who has been insane for five years or more.

LOUISIANA

Society News.—At a joint meeting of the Ouachita and Morehouse Parish medical societies, at Monroe, March 5, Drs. Lucian E. Larche and Wirt A. Rodgers, both of Bastrop, spoke on "Diagnosis, Management and Treatment of Bronchial Pneumonia in Childhood" and "Indications and Contraindications of Intravenous Therapy."—— Six Shreveport physicians participated in a symposium outlining the advances in medicine of the past ten years before the annual meeting of the Fourth District Medical Society, Shreveport, March 3; the speakers were Drs. Joseph E. Knighton, Sr., Willis P. Butler, Frederick G. Ellis, Jesse R. Stamper, John L. Scales and Edgar L. Sanderson.——The Orleans Parish Medical Society was addressed, March 23, by Drs. William H. Robin on "A Plea for the Cooperation of the Orleans Parish Medical Society with the New Orleans Health Department"; Alfred C. King, "Critical Remarks on the Whys and Wherefores of Bad Results in Certain Fractures," and Stanford Chaille Jamison, "Treatment of Aortic Regurgitation."

State Medical Meeting at New Orleans, April 14-16.—The fifty-second annual meeting of the Louisiana State Medical Society will be held, April 14-16, at New Orleans at the New Hutchinson Memorial Building, Tulane University of Louisiana School of Medicine, and under the presidency of Dr. Hermann B. Gessner. In addition to an extensive program by Louisiana physicians, addresses will be given by Dr. Felix J. Underwood, Jackson, Miss., on "Appraisal of County Health Work Based on Reduction of Morbidity and Mortality"; Walter T. Dannreuther, New York, "The Operative Correction of Uterine Retrodisplacements"; Claude F. Dixon, Rochester, Minn., "Intestinal Obstruction." General clinics and a dermatologic clinic will be held. Sixteen scientific exhibits will be shown, and a medical art exhibit from a collection largely made by Dr. Fayette C. Ewing, Alexandria, will be on view in the Tulane Medical Library. The annual orators will be Dr. Charles Geschickter, Baltimore, and Rufus Harris, LL.B., New Orleans, dean and professor of law, Tulane University, who will speak on "Recent Developments in Cancer Research" and "Law Improvement—A Problem in Diagnosis," respectively. Entertainment will include the president's reception and dance at the Jung Hotel Tuesday evening, April 14, and a golf tournament at the Metairie Golf Club.

MARYLAND

Bill Introduced.—H. 505, to amend the dental practice act, proposes (1) to make it unlawful for any person to practice dentistry under any name except his proper name, (2) to authorize the board to grant limited registration to any applicant furnishing the board with proof entitling him to be examined for registration under the act and with satisfactory proof that he has been appointed a dental intern in a hospital and (3) to regard every person as practicing dentistry who is a manager, proprietor, operator or conductor of a place where dental operations are performed.

MASSACHUSETTS

Fund for Medical Research.—Harvard University, Boston, will receive $20,000 by the will of Mrs. Frida Adler, widow of Dr. Isaac Adler, it is reported. The money is to be held in trust and the income used to "provide once in three years a prize for the best piece of original research produced within that period in the United States or Canada on any subject within the medical or allied sciences." The awards are to be known as the Isaac Adler Prizes.

Annual Meeting of Harvard Alumni.— The Harvard Medical Alumni Association will hold its annual meeting,

April 17-18, in Boston. Papers will be given Friday morning and afternoon, among others, by Drs. Walter B. Cannon, Hans Zinsser, Elliott P. Joslin, Elliott C. Cutler, George R. Minot, Wilson G. Smillie, Francis G. Blake, Hugh Cabot, Otto Folin and Theobald Smith. In the evening there will be a dinner with addresses by President Abbott L. Lowell, Dr. William S. Thayer, Baltimore, and Dean David L. Edsall. Clinics at various Boston hospitals will be held Saturday morning.

Society News.—Drs. Henry H. Faxon and Arthur W. Allen, Boston, addressed the Essex South District Medical Society, March 4, on "Treatment of Varicose Veins and Ulcers by the Injection Method" and "Neurovascular Surgery," respectively.——Dr. George A. Moore, Brockton, presented a report of cases with color photography of surgical specimens, March 24, before the Plymouth District Medical Society; Allan Winter Rowe, Boston, spoke on "Modern Diagnostic Methods."——Prof. Heinrich Wieland, Munich, gave a lecture at Harvard University Medical School, Boston, March 24, on "Recent Researches in Enzymatic Oxidation."——Dr. Lincoln F. Sise, Boston, addressed the Fall River Medical Society, February 11, on "Newer Forms of Anesthesia."——Dr. Samuel R. Meaker, Boston, addressed the Harvey Society, March 13, on "Social Aspect of Gynecology."

MICHIGAN

Bill Introduced.—H. 327, to amend the state narcotic law, proposes to include Canadian hemp, marihuana, loco weed and all other allied drugs of the same botanic family, among those substances deemed to be narcotics.

Personal.—Carl E. Buck, D.P.H., who has been epidemiologist with the Detroit Board of Health for eight years, has been granted an indefinite leave of absence, it is reported, to become director of the committee on administrative practice of the American Public Health Association.

Hospital Opens Speech Clinic.—Grace Hospital, Detroit, has established a free clinic for speech improvement training, open only to children of indigent families. The work will be carried out by an instructor trained in the department of biolinguistics at the University of Michigan. It will be under the supervision of the department of neurology, which, with the cooperation of the outpatient staff, will study patients for causative factors and prescribe correctional treatment.

H. B. Van Hyning's License Revoked.—Harry Hoxsey, the cancer-cure quack from Chicago, went to Detroit, where, it is reported, Dr. Homer B. Van Hyning acted as director of Hoxsey's so-called cancer clinic, which it seems was financed by some laymen. On March 30, the Michigan State Board of Registration in Medicine, in executive session, revoked Homer B. Van Hyning's license to practice, charging unprofessional conduct and the maintaining of professional connection with an unlicensed person. It is reported that Van Hyning plans to appeal. Hoxsey himself is said to be under $500 personal bond for trial in the recorder's court in Detroit on charges of practicing medicine without a license.

Society News.—The fifty-eighth annual meeting of the Northern Tri-State Medical Association (Indiana, Ohio, Michigan) will be held at Ann Arbor, April 14. The tentative program includes papers by Drs. Louis J. Karnosh, Cleveland, "Neurology of the Emotions"; Norman F. Miller, Ann Arbor, "Pelvic Inflammatory Diseases"; Plinn F. Morse, Detroit, "Sudden Deaths"; George W. Crile, Cleveland, "Further Report on Clinical Result of Degeneration of the Adrenal Glands," and William Wayne Babcock, Philadelphia (subject not announced). Dr. Cyrus C. Sturgis, Ann Arbor, will conduct a clinic on pernicious anemia; Dr. John Alexander, one on thoracic surgery, and Dr. Frank Wilson, a cardiac clinic.——Dr. James Burns Amberson, Jr., New York, addressed the Wayne County Medical Society and the Detroit Tuberculosis Society at a joint meeting, April 7, on "Tuberculosis in the Teens." Dr. John E. Gordon will speak, April 14, on the Detroit epidemic of meningococcus meningitis.

MINNESOTA

Bills Introduced.—S. 514 proposes that a physician who has had at least four years training in a regular medical college, who has engaged in the practice of medicine and surgery for more than twenty-five years, and who is the sole physician in a village at least 15 miles from any other village or city, need not comply with the provisions of the medical practice act. S. 1265, to amend the medical practice act, proposes to authorize the board at any time, for good cause, to rescind the revocation of a license and to reissue such license. H. 1277 proposes to create a board of naturopathic examiners and to regulate the practice of naturopathy. Provision is made for exempting from the provisions of the basic science act those applicants who were actually engaged in the practice of naturopathy in the state prior to May 1, 1927, and who prior to Oct. 1, 1927, made application to the basic science board for a certificate of registration in the basic sciences.

MONTANA

Society News.—Dr. George W. Swift, Seattle, addressed the Lewis and Clark County Medical Society in February on epilepsy and brain injuries.

Bill Enacted.—H. 102, according liens to physicians, nurses or hospitals treating persons injured through the fault of another, on any compromises, settlements, or judgments obtained by the injured persons by reason of the injuries, has become a law.

NEVADA

Bill Enacted.—A. 101, including marihuana among the substances classed as narcotics within the meaning of the narcotic act, has become a law.

NEW YORK

Society News.—The New York State Association of Public Health Laboratories will hold its fifteenth annual meeting in Syracuse, June 1.——Dr. Joseph C. G. Regan, Brooklyn, addressed the Medical Society of the County of Nassau, March 31, on present-day therapy in contagious disease.

Bills Introduced.—S. 263 proposes to regulate the sale and distribution of medicinal liquor. S. 1788 proposes to require physical examinations of applicants for licenses to operate motor vehicles. A. 1887 proposes that in cities of more than 50,000 population the local health officer must devote his entire time to the duties of the office and must not engage in the private practice of medicine. A. 2127 proposes to authorize the department of health to establish in the department a bureau or division for the enforcement of the provisions of the law with respect to habit-forming drugs. S. 1842 and A. 2291, to amend the public health law relating to the enforcement of the sanitary code, propose to authorize the public health council to prescribe by regulation the qualifications for directors in charge of approved laboratories, medical superintendents of public tuberculosis sanatoriums, county, city and deputy health commissioners, and other professional or technical positions in state and local public health service.

Report of Special Health Commission.—Reorganization of public health administration in New York is recommended in a preliminary report recently submitted to Governor Roosevelt by an unofficial health commission appointed by him in May, 1930, to make a survey of public health in the state. This is said to be the first comprehensive survey since 1913, when a similar commission headed by Dr. Hermann M. Biggs brought about fundamental changes in the system. The commission's recommendations for the institution of county health units to place the present system, in which there are 1,099 local health jurisdictions, were outlined in THE JOURNAL, April 4. In addition, changes are proposed in various special services directed toward uniform distribution of health service and concentration of such services under state health authorities. Three new state sanatoriums for tuberculosis, of not less than 200 beds, are needed, in the opinion of the commission, and the qualifications of the chief medical officers should be prescribed by the state. In the field of venereal disease the commission recommends that county and city boards of health provide facilities for diagnosis and treatment of venereal diseases as a public health problem. Two new divisions of the state department of health would be created in accordance with the commission's findings, one for cancer control, the other for care and rehabilitation of cripples. It is proposed that the New York State Reconstruction Home be placed under the exclusive jurisdiction of the health department. Special emphasis is placed on development of a state wide program of maternity and infant hygiene and coordination of effort in the field of school hygiene. Coordination and better distribution are needed in public health nursing. The commission further recommends that inspection of offices and factories in small towns be performed by the department of labor and also that this department should have facilities for conducting investigations on health hazards in industry. Extension of the

schedule of occupational diseases is another feature of the proposals relating to industrial hygiene. The department of health should have authority to approve any changes in public water supplies, to prescribe the qualifications for operators of water purification plants and to supervise the sanitary condition of state parks, the commission declares. In all of these recommendations the commission emphasizes integration of all activities with the proposed county health units. Finally, the report stresses training of public health officers, pointing out that they are specialists comparable to other specialists in medicine. It will not be possible, however, to retain well trained officers unless satisfactory compensation and opportunity for advancement are provided, the report concludes. Many of its recommendations are embodied in the Wicks-Hutchinson bill now pending in the state legislature.

New York City

Seventh Harvey Lecture.—Sir William Hardy, director of the low temperature research station of biochemistry and biophysics, Cambridge University, England, will deliver the seventh Harvey Society Lecture at the New York Academy of Medicine, April 16; his subject, "The Use of Cold in the Analysis of Physiological Function." Sir William has recently delivered the Abraham Flexner Lectures at Vanderbilt University School of Medicine, Nashville, Tenn.

Personal.—W. Frank Walker, D.P.H., formerly field director of the committee on administrative practice, American Public Health Association, joined the staff of the Commonwealth Fund, April 1, as director of the new division of health studies.——Present and past associates of Dr. Alexander Lambert at Bellevue Hospital gave him a testimonial dinner, March 4, in honor of his thirty-seventh anniversary as attending physician of the Fourth Medical Division of the hospital.

Dr. Burlingame Goes to Hartford.—Dr. Clarence Charles Burlingame, formerly executive officer of the Joint Administrative Board of the Columbia University-Presbyterian Hospital Medical Center, has been appointed physician in charge of the Hartford Retreat, Hartford, Conn. Dr. Burlingame spent eight years in psychiatric service of state hospitals in Massachusetts and Minnesota and during the World War he was director of the medical and surgical department of the American Red Cross in France. He has recently been engaged in private practice in New York. The Hartford Retreat is said to be the third oldest privately endowed hospital for mental diseases in the United States, having been founded and chartered by the Connecticut State Medical Society 109 years ago.

Society News.—Dr. Ralph Pemberton, Philadelphia, delivered the seventeenth afternoon lecture at the New York Academy of Medicine, March 20, on arthritis, and Dr. Bret Ratner, the eighteenth, March 27, on allergy in children.——A symposium on diabetes comprised the program of the Medical Society of the County of New York, March 23; speakers were Drs. Elliott P. Joslin and Leland S. McKittrick, Boston, and Benjamin Jablons.——Dr. Frank E. Adair addressed the New York Surgical Society, March 25, on "Results of Treatment by Surgical and Radiation Methods of Operable Mammary Carcinoma at the Memorial Hospital for the Ten Years 1916 to 1926."——Drs. Howard M. Clute and Shields Warren, Boston, gave a paper on cancer of the thyroid gland, and Dr. Silik H. Polayes, one on "Pathology of a Case of Psittacosis with Special Reference to Changes in the Spinal Cord," March 26, before the New York Pathological Society.——Dr. Charles Gordon Heyd delivered the fifth postgraduate lecture for Harlem physicians, sponsored by the North Harlem Medical Association, March 27, on goiter.——Dr. Richard Kovacs addressed the Medical Society of the County of Queens, March 20, on "Application of Physical Therapy in Daily Practice."——Drs. Anton J. Carlson, Chicago, and Boris P. Babkin, Montreal, addressed a joint meeting of the New York Academy of Medicine and the New York Gastro-Enterological Society, April 2, on "Motor Mechanism of the Large Bowel" and "Mechanism of Gastric Secretion," respectively.

NORTH CAROLINA

Bill Enacted.—S. 333, permitting any two or more counties to establish a district hospital home for the aged and infirm in lieu of separate county homes, has become a law.

NORTH DAKOTA

Bill Enacted.—H. 67, requiring every medical licentiate to register annually with the board of medical examiners and to pay an annual fee of $5, has become a law.

OHIO

Personal.—Dr. William D. Andrus, assistant professor of surgery at the University of Cincinnati College of Medicine, will go to New York in July to be associated with Dr. George J. Heuer, who was recently appointed professor of surgery at Cornell University College of Medicine.

Dr. Hayhurst Resigns.—Dr. Emery Roe Hayhurst, professor of health and hygiene, Ohio State University College of Medicine, is reported to have resigned, effective June 30, after sixteen years with the university. Dr. Hayhurst is consultant to the industrial division of the Ohio State department of health.

Septic Sore Throat at Oxford.—Fifty-seven cases of septic sore throat occurred at Western College for Women, Oxford, in March, principally among students. Investigation by the state board of health resulted in the closing of the college dairy, which is said to have been found in an unsatisfactory condition. Preliminary tests indicated the probability that one of the five persons employed in this plant was a carrier.

Foundation for Health Education.—The Academy of Medicine of Cleveland has set aside $10,000 as a nucleus for a health education foundation. The income from this fund, which the academy expects to augment with subscriptions from interested persons, will be used, according to the Cleveland *Plain Dealer*, (1) to apply scientific research to present methods and materials to test their worth and effectiveness, (2) to provide public health lectures, carry on publicity in the interest of health through paid space in publications, radio broadcasting and group instruction, (3) to acquaint the public with the advantages the community offers in the way of caring for the sick and the prevention of disease, (4) to encourage observance of the laws, ordinances and statutes affecting public health, (5) to urge the adoption and enforcement of such legislation, and (6) to save the public from exploitation. To accomplish these ends the foundation plans to work through education of physicians in preventive medicine, through education of the public directly or through the family physician or through other institutions and through acting as adviser to institutions. The first activity under the new foundation is a series of popular lectures, of which Dr. T. Wingate Todd, professor of anatomy, Western Reserve University School of Medicine, delivered the first, March 22, on "Life's Impact and Youth's Adjustment." The second will be given, April 19, by Dr. George W. Crile on "Life's Impact and the Adult's Adjustment"; the third, by Dr. Louis J. Karnosh, assistant clinical professor of nervous diseases, Western Reserve University, May 17, on "Life's Impact on the Nervous System."

Society News.—The Cincinnati Academy of Medicine was addressed, March 9, by Drs. Clarence King on "Defective Vision in Children Due to Squint"; Donald J. Lyle, "Squint, a Clinical Study Emanating from the Children's Hospital," and Ralph William Good, "Free Fascial Transplants in the Treatment of Recurring Inguinal Hernia."——Dr. John L. Stifel, Toledo, addressed the Wood County Medical Society, January 15, at Bowling Green on "Migraine, Epilepsy and Allied Disorders."——Dr. Jesse Fremont Bateman, Cincinnati, addressed the Stark County Medical Society, Canton, March 11, on "Cerebrospinal Fluid Pathways," and a symposium on adolescent stealing was presented, with Dr. Henry C. Schumacher, Cleveland, Dr. John D. O'Brien, Canton, James Aungst, Canton attorney, and Prof. Albanus B. Kitzmiller, Ph.D., Mount Union College, Alliance, as the speakers.——Dr. Walter G. Stern, Cleveland, addressed the Darke County medical and bar associations, March 13, on "The Doctor in Court."——Drs. Karl D. Figley, Evan G. Galbraith and Bernard S. Steinberg, Toledo, conducted a symposium on etiology and management of asthma at the Van Wert County Medical Society, Van Wert, March 17.——Dr. Edward C. Rosenow, Rochester, Minn., addressed a joint meeting of the Cincinnati Academy of Medicine and the Cincinnati Dental Society, March 16, on focal infection; Dr. Louis Howard Schriver discussed "Social and Economic Influences on Health."——Brian O'Brien, Ph.D., Rochester, N. Y., gave an illustrated address on "Some Quantitative Considerations Underlying the Application of Light Therapy" before the Toledo Academy of Medicine, March 6.——Dr. Walter M. Simpson, Dayton, addressed the Summit County Medical Society, Akron, April 7, on undulant fever.——At a joint meeting of the Columbiana County medical and dental societies, East Liverpool, March 19, the general subject discussed was "Pulpless Teeth as Foci of Infection."——Dr. Casper H. Benson, Columbus, addressed the Hocking County Medical Society, March 20, on tuberculosis.

OKLAHOMA

Bill Introduced.—S. 250 proposes to exempt from taxation privately owned hospitals 10 per cent or more of whose cases are charity cases.

PENNSYLVANIA

Society News.—Dr. Russell L. Haden, Cleveland, addressed the Cambria County Medical Society, March 12, Johnstown, on "Types and Treatment of Chronic Rheumatism."——Drs. William A. Frontz and Charles A. Waters, Baltimore, addressed the Lycoming County Medical Society, Williamsport, March 13, on "Surgical Treatment of Cancer of the Prostate and Bladder" and "Radiation Therapy of Lesions of the Genito-Urinary Tract."——Dr. Henry K. Mohler, Philadelphia, addressed the Luzerne County Medical Society, Wilkes-Barre, March 4, on "Coronary Artery Disease."——Dr. Harold A. Miller, Pittsburgh, addressed the Mercer County Medical Society, Sharon, recently, on "Toxemias of Pregnancy."——Drs. Theodore Wollak and Clyde Ross McKinniss addressed the Allegheny County Neurological Society, March 16, at Torrance State Hospital, Torrance, on "Psychosis with Other Somatic Diseases" and "A Broader and Newer Field in State Hospital Work," respectively.——Dr. Clay Ray Murray, New York, spoke before the Northampton County Medical Society, March 20, on fractures.——Drs. Thomas B. Semans, William A. McHugh, Jr., and Francis J. King, Connellsville, discussed spinal anesthesia at the Fayette County Medical Society, April 2.——The Westmoreland County Medical Society will hold its annual clinical session, May 7 and 8, at the Westmoreland Hospital, Greensburg; physicians who will conduct clinics include Drs. David Cheever, Boston; Russell L. Cecil and Royal S. Copeland, New York; Edward L. Bortz and Stanley P. Reimann, Philadelphia.——Dr. Morris Edward Davis, Chicago, presented a motion picture, "Low Cervical Cesarean Section," prepared under the direction of Dr. Joseph B. De Lee of Chicago, before the Allegheny County Medical Society, Pittsburgh, March 17.——Dr. Alexander H. Colwell, among others, addressed the Pittsburgh Academy of Medicine, March 24, on "Psychic Factors as Causes of Physical Symptoms."

Bills Introduced.—S. 409 proposes to provide for the licensing of registered nurses and licensed attendants by the state board of the healing arts. S. 410 proposes to create a state board of the healing art to take over the functions of the state board of medical education and licensure, the state board of osteopathic examiners, the osteopathic surgeons' examining board and the state board of examiners for the registration of nurses. S. 411 proposes a new act for the regulation of all forms of the healing art. S. 412 proposes to vest in the state board of the healing arts functions now exercised by the state board of medical education and licensure with respect to the licensing of midwives. S. 545, to amend the osteopathic practice act, proposes (1) that the board of osteopathic examiners shall hold at least one and not more than two meetings each year for the purpose of examining applicants and (2) that whenever the word "physician" appears in any law with respect to the control of contagious disease, the reporting and certifying of births and deaths, and all matters pertaining to the public health it shall be construed to include osteopathic physicians. S. 553 proposes to create a council of nursing education to take over the functions of the state board of examiners for the registration of nurses. S. 611, to amend the pharmacy practice act, proposes that proprietary medicines or household drugs are not to come within the classification of poisons as defined in the act. Such medicines or drugs must not contain opium, coca leaves, chloral or any of the salts, derivatives or compounds thereof in any quantity whatever. However, remedial agencies administered hypodermically, intramuscularly or intravenously, and all substances containing barbituric acid and medicines containing substances of glandular origin, may be sold only by registered pharmacists. H. 1096 proposes to create a state board of naturopathic education, examination and licensure and to regulate the practice of naturopathy. H. 1144 proposes to require the mental and physical examination of all persons who plead guilty or are convicted, prior to the sentencing of such persons. H. 1193 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic, defined as "the adjustment by hand of any and all articulations of the spinal column." H. 1267 proposes to require every applicant for a license to marry to present a certificate from a physician stating that he or she is free from contagious disease. H. 1209 proposes to provide for the sexual sterilization of certain socially inadequate inmates of state institutions. H. 1210 proposes that nothing contained in the law relating to obscene advertisements and the sale of noxious medicines shall in any way affect the distributing of contraceptive drugs or appliances by manufacturers, dealers or druggists to lawfully practicing physicians or to married persons on the written prescription of lawfully practicing physicians.

Philadelphia

Annual Public Health Day.—Philadelphia's annual public health day, sponsored by the Philadelphia County Medical Society in conjunction with about ninety civic and health agencies, was celebrated, March 25, with the emphasis on periodic health examinations. The importance of annual health audits was pointed out in radio talks, in health bulletins distributed at industrial plants and in public addresses. At the society's meeting Dr. Donald B. Armstrong, New York, gave an address on "The Benefit of Health Examinations for the Individual"; Dr. Reginald Fitz, Boston, "Doctors and Periodic Health Examinations," and Dr. Francis Ashley Faught, "Discussion of Facts Obtained from Summary of 500 Health Examinations in Private Practice." Rollo H. Britten of the U. S. Public Health Service, Washington, D. C., discussed the value of the physical examination as an instrument for research.

Society News.—Dr. Emanuel Libman, New York, addressed the Northern Medical Association of Philadelphia, March 16, on "Studies on Pain, with Special Reference to Diagnosis in Surgical and Medical Conditions." Drs. John B. Deaver and David Riesman discussed the paper.——Drs. George E. Pfahler and Paul S. Seabold addressed the Philadelphia Roentgen Ray Society, April 2, on "Demonstration of the Lymphatic Drainage of the Maxillary Sinuses" and "Roentgenographic Diagnosis of Diseases of the Breast," respectively.——Cancer control was discussed by Maude Slye, Chicago, and George A. Soper, Ph.D., New York, at the Philadelphia County Medical Society, April 8. Dr. William Egbert Robertson gave the postgraduate seminar sponsored by the society, April 3, on "Some Physiological Applications in Medicine."——Charles-Edward Amory Winslow, D.P.H., New Haven, Conn., addressed the Philadelphia College of Physicians, April 1, on "The Modern Community Health Program."——Dr. Lawrence Goldbacher, Philadelphia, gave a series of lectures and clinics in proctology, March 4, 12 and 20, to naval medical officers at the Naval Hospital.

SOUTH DAKOTA

Bills Enacted.—The following bills have become laws: S. 64, proposing to provide for the collection, recording and preservation of vital statistics under the supervision of the state board of health; S. 96, regulating the practice of chiropody; S. 63, providing for a statewide census of the feebleminded, and for filing a list of names obtained thereby with all marriage license agencies, who may not issue a license to any person on said list; H. 96, requiring all pharmacies to be registered with the board of pharmacy and to be owned by licensed pharmacists; and H. 178, amending the nursing practice act by providing that one member of the board of nurse examiners may be connected with a training school for nurses.

TENNESSEE

University News.—Dr. George F. McCleary, deputy senior medical officer, Ministry of Health, England, will speak at Vanderbilt University School of Medicine, April 24, on control of narcotic drug addiction. Dr. McCleary is in the United States to deliver one of the De Lamar lectures at Johns Hopkins University School of Hygiene and Public Health, Baltimore, April 14. Dr. George R. Minot, Boston, addressed the school of medicine and the Nashville Academy of Medicine, March 31, on treatment of anemia.

Health at Memphis.—Telegraphic reports to the U. S. Department of Commerce from eighty-one cities with a total population of 36 million, for the week ended March 28, indicate that the highest mortality rate (22.2) appears for Memphis, and the rate for the group of cities as a whole, 13.5. The mortality rate for Memphis for the corresponding week of 1930 was 18.1 and for the group of cities, 13.2. The annual rate for the eighty-one cities was 14 for the thirteen weeks of 1931 as compared with 13.3 for the corresponding weeks of 1930. Caution is necessary in the interpretation of these figures as weekly figures fluctuate widely. The fact that some cities are hospital centers for large areas outside the cities or that they have large Negro populations may tend to increase the death rate.

State Medical Meeting at Knoxville, April 14-16.—The ninety-eighth annual meeting of the Tennessee State Medical Association will be held at Knoxville, April 14-16, with headquarters at the Andrew Johnson Hotel. Dr. James B. McElroy, Memphis, will give the presidential address on "Some Problems of Organized Medicine." Guest speakers will include Drs. Thomas J. Kirwin, New York, whose subject will be "Vesical Neck Obstruction with a Presentation of a New Instrument for Its Relief"; James R. McCord, Atlanta, "Management of Eclampsia"; and Frank H. Lahey, Boston, "Carcinoma of the Colon and Rectum." A talking motion picture on "Vaginal Hysterectomy for Uterine Prolapse" will be shown. The Tennessee Hospital Association will also hold its annual meeting in Knoxville, April 13.

TEXAS

Bill Enacted.—H. 6. requires all medical licentiates to register with the board of medical examiners annually and to pay an annual fee of $2.

Society News.—At the meeting of the Northwest District Medical Society, Graham, March 10, speakers included Drs. William A. Fisher, Chicago, on the modified Smith operation for cataract; Simeon H. Hulsey, Fort Worth, diagnosis and management of allergic rhinitis, and Rollin S. Fillmore, Jr., Jacksboro, treatment of varicose ulcer.——A program of case reports was presented before the Tarrant County Medical Society, Fort Worth, March 17, by Drs. Ernest H. Bursey on "Endarteritis Obliterans with Lumbar Sympathectomy"; Hubert F. Leach, "Infections Following Bone Injuries," and Richard J. White, "Osteogenic Sarcoma." A symposium on fractures was presented before the society, March 3, by the following physicians: Drs. Roy H. Gough, George R. Enloe, Richard J. White, William F. Birdsong, Frank L. Snyder, Ross B. Trigg and Herman Radtke. At the meeting, February 3, Dr. Zack B. Bobo, Jr., among others, addressed the society on gastro-intestinal roentgen studies.

UTAH

Bill Enacted.—S. 21, regulating the practice of chiropody, has become a law.

VERMONT

Bill Introduced.—S. 64 proposes to provide for the sterilization of any person, with his consent, when two physicians decide (1) that such person is socially inadequate and likely to procreate socially inadequate offspring and (2) that the welfare of such person and the public welfare will be improved by a sterilization operation.

WISCONSIN

Bills Introduced.—A. 89, to amend the workmen's compensation act, proposes that no employer or insurer shall be permitted over the objection of the injured employee, to present the testimony of the attending physician, unless it first be established that copies of all written reports and the substance of all oral reports of such physician were promptly furnished to the employee or his representative. A. 704, to amend the workmen's compensation act, proposes to authorize the commission to allow claimants reasonable amounts for the services of medical experts.

CANADA

Personal.—Dr. George H. Murphy, Halifax, was recently appointed minister of public health for Nova Scotia. Dr. Murphy is associate professor of clinical surgery at Dalhousie University School of Medicine.

Alberta License Lost.—The registrar of the College of Physicians and Surgeons of Alberta has recently reported the loss of the license to practice medicine in the province of Dr. Morley Alphonso Ryerson Young, Calgary. It appears that Dr. Young never received his license, which was issued July 22, 1922.

Society News.—Drs. Alexander Russell Munroe and Egerton Llewellyn Pope, professors of surgery and medicine, respectively, in the University of Alberta Faculty of Medicine, Edmonton, addressed the Toronto Academy of Medicine, March 3, on "Operative Treatment of Fractures" and "Scoliopathexis." Dr. Thomas Glendenning Hamilton, Winnipeg, addressed the academy, March 4, on "Telespasms and Associated Psychic Phenomena." E. F. Burton, Ph.D., and Dr. Arthur C. Hendrick were the speakers, March 11, on "Colloids—Preparation and Properties" and "Changes Observed in the Pathology of Bone Tumors After Intravenous Injections of a Colloidal Solution."

Cancer Survey.—A cancer survey was begun in Vancouver, February 23, it is reported, as part of a program to record the status of the disease in British Columbia, initiated by the city health authorities in cooperation with the Vancouver Medical Association. When the survey is completed, it is hoped that a radium institute may be established or, if not, that a supply of radium will be purchased, so that treatment will be available to residents of British Columbia. Quebec was the first province to purchase radium for treatment of cancer. Saskatchewan was next; Ontario completed a survey during the past year, it is said, and has purchased radium, while Manitoba is said to have legislation ready providing for similar action.

GENERAL

Society News.—Dr. Francis M. Pottenger, Monrovia, Calif., was elected president elect of the American College of Physicians at its recent meeting in Baltimore; vice presidents elected were Drs. Aldred Scott Warthin, Ann Arbor, Mich.; Charles G. Jennings, Detroit, and John A. Lichty, Clifton Springs, N. Y. Dr. Solon Marx White, Minneapolis, was inducted as president. San Francisco was chosen as the next meeting place.——Among speakers at the annual convention of the American Red Cross, Washington, D. C., April 13-16, will be Drs. Ray Lyman Wilbur, secretary of the interior, on "The Child's Bill of Rights"; Livingston Farrand, president, Cornell University, Ithaca, N. Y., "The Next Fifty Years"; William A. White, Washington, D. C., "Therapeutic Value of Hospital Social Service," and William De Kleine, Washington, D. C., "Red Cross Opportunities in Child Health."

Cancer Society Expands Field Service.—The American Society for the Control of Cancer recently announced a plan of field service in which the United States has been tentatively divided into districts, with three new field representatives appointed to cover these territories. Dr. Frank L. Rector, who joined the staff in August, 1930, is in charge of the midwestern section, where he has already been engaged in active work. Dr. Rector was formerly on the staff of the U. S. Public Health Service and later executive secretary of the Chicago Medical Society. Dr. John M. Flude, who was in general and special practice in Philadelphia and Pittsburgh for several years, will take over the far western section of the country. Dr. Robert A. Herring is to be placed in charge of the Northeastern states; he was formerly in the U. S. Public Health Service and is said to have organized the department of preventive medicine at the University of Georgia Medical School. Dr. J. W. Cox, who during his several years' service with the society has assumed the greatest part of the field work, will continue on the society's staff. His activities, for the present, will be concentrated in the Southern states.

Four Weeks of Automobile Fatalities.—The U. S. Department of Commerce announces that, during the four weeks ended March 21, eighty-one large cities in the United States reported 602 deaths from automobile accidents. This number compares with 585 deaths during the four weeks ended March 22, 1930. Most of these deaths were the result of accidents that occurred within the corporate limits of the city, although some accidents occurred outside the city limits. Considered by four week periods since January, 1929, total deaths from automobile accidents for eighty-one cities, regardless of place of accident, the lowest total (471) appears for the four week period ended Feb. 23, 1929, and the highest (850) for the four week period ended Nov. 2, 1929. For the fifty-two week periods ended March 21, 1931, and March 22, 1930, the totals for the eighty-one cities were, respectively, 8,956 and 8,718, which indicate a recent rate of 25.7 per hundred thousand of population as against an earlier rate of 25.5, or an increase of 0.8 per cent in the rate during the year. The rates published in this summary are based on midyear population estimates derived from the 1930 census.

PORTO RICO

University News.—Visiting professors who have recently lectured at the School of Tropical Medicine of the University of Porto Rico are Dr. Theobald Smith, Princeton, N. J.; Drs. Walter W. Palmer and William C. Von Glahn, New York; Malcolm H. Soule, Sc.D., Ann Arbor, Mich., and Ernst Carroll Faust, Ph.D., New Orleans.

FOREIGN

Hospital News.—A new clinical lecture theater, additional ward space, an operating theater and laboratories for pathology, built at a cost of £13,000 at the Hospital for Tropical Diseases, London, have been opened and dedicated to the memory of Sir Patrick Manson, founder of the Seamen's Hospital Society, from which grew the present hospital.

British Medical Association Meeting, July 21-25.—The ninety-ninth annual meeting of the British Medical Association will be held at Eastbourne, July 21-25, under the presidency of Dr. William G. Willoughby, medical officer of health for Eastbourne. The presidential address will be given in the afternoon of July 21 and the sectional meetings for clinical and scientific work will be held on the following three days, with discussions in the mornings and demonstrations in the afternoons. The annual representative meeting is to begin July 17.

International Trachoma Prize.—The Royal Hungarian minister of public welfare and labor offers a prize of 2,000 Swiss francs for an independent work on the etiology of trachoma. Essays must be addressed to the Eye Clinic No. 1 of the Royal Hungarian Peter Pázmány University, Budapest (VIII, Mária-utca 39) not later than June 30, and may be written in German, English, French, Italian or Hungarian. Essays that have already been published are eligible for competition.

Effect of Milk on Growth of Children.—Following an investigation in Lanarkshire schools by the Department of Health for Scotland on milk consumption and the growth of school children, it was decided that the influence of the addition of milk to the diet of school children is reflected in a definite increase in the rate of growth both in height and weight; that there is no obvious or constant difference in this respect between boys and girls, and that there is little evidence of definite relation between the age of the children and amount of improvement. The investigation is said to be the first in which a government department made itself responsible for a daily milk supply to 10,000 children. The number of children under observation was 20,000, of whom 5,000 received raw milk, 5,000 pasteurized, and the remaining 10,000 were used as controls. The milk supplied was grade A, each child receiving three fourths of a pint daily. Sixty-seven schools were included in the investigation, the selection of representative children being left to the teachers, the age group including those of from 5 to 12 years. Cards were printed in distinctive colors for the children receiving raw milk, for those receiving pasteurized milk and for those used as controls. As each child was weighed and measured at the beginning of the investigation, the results were added to the cards, which, at the conclusion of the investigation, were sent to the department of health for statistical analysis. The measuring and weighing required the full time of five physicians and seventeen nurses.

Society News.—The International Neurological Congress will be held at Berne, Switzerland, August 31-September 4. Among Americans listed on the preliminary program are Drs. Walter E. Dandy, Baltimore, Ernest Sachs, St. Louis, Harvey Cushing, Boston, and Percival Bailey, Chicago, who will discuss diagnostic and therapeutic procedures in brain tumors; Lewis J. Pollock and Loyal E. Davis, Chicago, and James Ramsay Hunt, New York, whose subject will be muscle tonus, and Smith Ely Jelliffe, New York, who is scheduled to discuss trauma of the nervous system.——The International Hygiene Museum at Dresden, Germany, is sponsoring a second International Hygiene Exhibition, which will extend from May 2 to September 15. A new department called "Popular Teaching of Hygienics in All Countries" is to be inaugurated this year.——The Second International Congress for Light will be held in Copenhagen, Aug. 15-18, 1932, under the presidency of Dr. Axel L. Reyn. The purpose is to study all questions relating to biologic and biophysical researches in connection with light and light treatment. The membership fee is $8. Further information may be had from the secretary general, Dr. A. Kissmeyer, Finsens Lysinstitut, Copenhagen.——The meeting of the Gesellschaft für Verdauungs- und Stoffwechselkrankheiten (society for diseases of digestion and metabolism) will be held in Vienna under the chairmanship of Prof. Dr. Wilhelm Falta. The session, September 23, will be jointly with the meeting of the "Deutsche Pharmacologische Gesellschaft" (German pharmacologic society) which will be held, September 21-23, under the chairmanship of Prof. Dr. Flury in Vienna. Further information may be obtained from the general secretariate of the society, Berlin W. 30, Bamberger Str. 49.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 14, 1931.

Anesthesia in Labor as a Routine

An appeal was recently made in the press by the wife of the ex-prime minister for a fund to enable routine anesthesia to be provided for the labors of poor women. It was assumed that this was a desirable thing and no question of any disadvantages was entertained. The matter then came before the London County Council, which controls many maternity hospitals. The council invited its public health committee to consider and report on the desirability and practicability of making arrangements to give light anesthesia in labors in its hospitals. Information was obtained as to existing practice. Out of 7,454 patients delivered in 1929, 1 in 8.5 received a sedative, an analgesic or an anesthetic; 1 in 19.5 received a sedative only; 1 in 18 received an analgesic only; 1 in 89 received a general anesthetic (mostly abnormal cases). At five out of twenty-two hospitals, light anesthesia was given to a few normal patients (mostly primiparas). At eleven hospitals, analgesics were employed. At one hospital half the patients received this form of relief but in most of the hospitals only a small percentage. All the hospitals gave a general anesthetic in abnormal cases in which intervention was required.

The committee issued a report stating that the more extended use of general anesthesia, even in the intermittent form, known as obstetric anesthesia, requires careful consideration. Many of the physicians in charge of the maternity hospitals are opposed to general anesthesia as a routine, as they believe that it delays labor, increases the need for intervention and in other ways increases the risk to mother and child. Further, some physicians are opposed to administration of any form of general anesthesia by nurses except under the direct supervision of the physician. In the council's hospitals all normal labors are attended by midwives only. As to the wishes of the patients, there is considerable prejudice against anesthesia in some quarters, but judging by the experience of women who demand it when in a position to pay for it probably 90 per cent of the inmates of the council's hospitals would ask for it. The committee observes that the administration or supervision of obstetric anesthesia is not a particularly interesting or valuable experience for a young physician. In spite of these considerations, the committee feels that the provision of light anesthesia in normal cases is one which, having regard to modern opinion and practice, should be conceded, at any rate for an experimental period.

A Group of Physical Medicine

The members of the British Medical Association engaged in the study and practice of electrotherapeutics and physical therapeutics have petitioned for the establishment of a "Group of Physical Medicine." The recent development of these subjects has resulted in a large body of physicians interested in them. The interests of electrotherapists and physical therapists differ in some respects from those of the ordinary members of the British Medical Association. Therefore in the meetings of the divisions and branches of the association these specialists find it difficult to make their opinions of weight. From the nature of things there can be few divisions in which they are represented by more than one or two members and in many they have none. They think that some central formation within the association is necessary to collect and formulate and give vent to the opinions of all interested in physical therapy on matters concerning relations with other branches of the profession and between workers in the various branches of their own subject.

Research on the Alpha Rays

Lord Rutherford, F.R.S., whose researches are fundamental in the modern conception of the atom and therefore in the understanding of radiotherapy, delivered an address at the Royal Institution on "Recent Researches on the Alpha Rays." He said that the most typical mode of disintegration of radium and other radioactive bodies consisted in the expulsion of an alpha particle or helium nucleus from the radioactive nucleus with great velocity and energy. In recent years, research had been made to test whether the liberated alpha particles all had the same speed or whether they consisted of groups with small differences of velocity. The complexity of the alpha rays had been analyzed by deflecting them in a powerful magnetic field and in many cases it had been found that the alpha particles appeared to be homogeneous in velocity. On modern views this indicated that the alpha particle in the nucleus before expulsion had a certain definite energy level which was defined by quantum conditions. But it seemed not unlikely that other energy levels might exist within the nucleus and that some of the alpha particles might be liberated with a different speed. With the ordinary electromagnets they suffered only a small deflection. But great improvement in resolution would be produced if they could be bent round in a semicircle, when a definite focusing effect could be produced. This had recently been done in Paris by Rosenblum with a gigantic electromagnet, of which the pole pieces were a meter in diameter. He thus bent the alpha particles into a semicircle of a radius of 20 cm. By the focusing method it was found that the alpha particles from a number of radioactive bodies appeared to be homogeneous to a high degree, but one element, thorium C, gave alpha particles which consisted of a number of distinct groups each characterized by a definite speed. As thorium is used in radiotherapy, possibly this property has some practical bearing.

The Lowest Death Rate

The vital statistics for 1930, just issued by the registrar general, show that 649,430 live births and 455,497 deaths (excluding stillbirths) occurred in 1930. The natural increase of population was therefore 194,033, against an average of 191,824 in the preceding five years. The birth rate was 16.3 per thousand of population (the same as for 1929, which was the lowest recorded). The death rate was 11.4, being 2 below that for 1929 and the lowest on record. The infant mortality was also the lowest on record, being 5 below 1928, the previous lowest, and 14 below that for 1929.

BERLIN

(From Our Regular Correspondent)

March 2, 1931.

Anniversary of Society of Internal Medicine

The Berliner Verein für innere Medizin held recently a gala session in memory of its founder, Ernst von Leyden. Professor His, the chairman, gave an account of the history of the society, which Leyden founded to prevent internal medicine from being split up into many different specialties. Through collective research on tuberculosis, influenza and serum treatment of diphtheria, the society has contributed much to the progress of science as applied to practice. The following were made honorary members of the society: v. Romberg and Friedrich v. Müller of Munich, v. Krehl of Heidelberg, and Minkowski of Breslau-Wiesbaden.

In his address on the treatment of heart disease during the past fifty years, Professor von Romberg of Munich called attention to the fact that the almost purely physicodiagnostic consideration of heart disease and the negative therapeutic attitude, which today seem rather strange, have been replaced by careful observation at the bedside. In 1890, Romberg made the heart muscle the central feature of his observations and designated it as the automatic motor of the circulation. The recent developments in the pathology of the heart are unthinkable without the measurement of the blood pressure. Since Martius and Friedrich Kraus stressed its importance, more attention has been paid to the whole personality of the heart patient. One may consistently speak of heart disease only when the manifestations are caused by the heart and are not merely manifest in the heart. According to v. Bergmann, the elimination of organic neuroses in this field is effected with pleasing rapidity. Not the otherwise healthy heart but the psychic change constitutes the chief point of attack of the treatment. The same rule applies to the frequent heart symptoms associated with constitutional inferiority. To be sure, there are numerous transitions to actual heart disease. Functional diagnosis has proved its worth all along the line. Nevertheless, it would be extremely ill advised to neglect the anatomic conditions, for precisely through their appreciation can the significance of functional influences be understood.

The complete reversal of therapeutic views as compared with the former hopeless resignation is due to the more correct point of attack in the treatment. The abnormal activity of the heart muscle that lies at the basis of the functional disturbance of the heart can often be remedied. Digitalis remains the indispensable remedy. Success depends to a great extent on the dosage. The mode of administration is important and the most significant precondition is a uniformly active preparation. In conclusion, Romberg referred to the prophylactic endeavors looking toward the prevention of heart disease by combating syphilis, by attempts to control recurrences of articular rheumatism, and by gymnastics and sports.

Treatment of Malignant Tumors

Whereas it was formerly the endeavor to accomplish a direct and complete destruction of the tumor cell by means of irradiation, of late years more attention has been given to sparing the organism as much as possible. The former concentration of the radiologic attack has been abandoned and in its place are a carefully planned fractionation and distribution of the radiotherapeutic action over a period of several weeks. In addition, an attempt has been made of late to effect an active stimulation of the hitherto unknown defense forces of the organism toward tumor formations. It is not yet possible to decide as to whether this method is of any considerable value. From the standpoint of diagnosis, at least, valuable ground has been won in this direction, as research by Reding and Sloze on the hydrogen ion concentration in the blood serum of cancer patients has shown. This method of research has now been subjected to extensive verification by Professor Holfelder, roentgenologist at the University of Frankfort. The observations of Reding and Sloze were thereby substantiated. According to Holfelder's conclusions, no cancer occurs with hydrogen ion values under 7.37, whereas in cancer patients values between 7.42 and 7.53 are usually found. Modern roentgenotherapy understands seeking out the tumor in the organism and applying isolated treatment, so that modern roentgenotherapy is to be compared with a bloodless operative procedure. With this method, lasting results extending over a period of ten years may sometimes be secured. More recently, ameliorations have been effected also in inoperable cases of gastric cancer such as have been secured by no other method; how long the ameliorations will continue is still problematic. It is therefore evident that radiotherapy, the possibilities of which are today by no means utilized to the fullest extent, constitutes a promising form of treatment and should therefore be developed with all possible energy.

Sterilization of the Unfit

At a recent session of the reichstag committee for the drafting of the new penal code of Germany, the subject of sterilization of incorrigible criminals was discussed. It was desired

that the intervention should not be regarded as a punishable bodily injury if well founded eugenic and social considerations demanded it. The present status of the law with reference to sterilization is somewhat confused. For instance, it is perfectly admissible to sterilize a woman who, on account of a severe chronic disorder, is unable to assume the liability of another pregnancy. In that case, sterilization has a therapeutic purpose. But sterilization for the purpose of preventing defective or diseased offspring is prohibited by law. Such so-called eugenic indications for sterilization may be interpreted by the courts as severe bodily injury, which is still punishable even though the person so treated consented to the intervention. The situation has become still further confused owing to the fact that certain courts having jurisdiction in guardianship matters have approved the sterilization of wards for eugenic reasons or have simply declared that consent to sterilization rests with the guardian. The departments of justice of the German *länder* take the attitude of silent tolerance.

An inquiry in German cities with more than 50,000 inhabitants, which was instituted by hygienist Fetscher of Dresden in the spring of 1930, revealed that in seventeen of the ninety-five cities sterilizations at public expense had been performed, while six other cities desired or contemplated interventions of this kind. It is evident, therefore, that health boards act in contravention of the penal code—certainly not in an indifferent manner but under the force of necessity and conviction. It can only be regarded as a moral duty to prevent the procreation of unfortunate and often weakly offspring. In addition to eugenic considerations, there are economic and demographic problems involved.

It is not a question of wholesale sterilizations carried out without a definite plan; on the contrary, every single case requires careful scrutiny and investigation. The demographic effect that is sought can be studied only in the light of many single events extending over considerable periods of time.

BELGIUM

(From Our Regular Correspondent)

Feb. 20, 1931.

International Congress on Rheumatism

At the second Congrès international de la ligue contre le rhumatisme, held at Liége under the chairmanship of the minister of hygiene, the attendance was 200 and 15 nations were represented. A single topic was on the program: "Disturbances of Cutaneous Circulation Associated with Chronic Rheumatismal Disorders." Mr. Foged and Professor Laignel-Lavastine discussed "Disturbances of Cutaneous Circulation in Acute Articular Rheumatism." Professor Bohumil Prusik dealt with "Cutaneous Circulation in Rheumatism." The international committee of the league decided to hold the next congress in Rome, in the forepart of 1932, and that the topic for discussion should be "The Early Symptoms of Rheumatism."

The Toxic Effects of Tobacco Smoke

Tournade and Malmejac presented recently to the Academy of Medicine of Belgium a communication on an experimental study on the toxic effects of inhaled tobacco smoke. The disorders presented by dogs, which are due essentially to excitation of the sympathetic system, are the same that are produced by the intravenous injection of nicotine. This identity recognized, it is possible to estimate the quantity of alkaloid that is introduced into the organism by the smoke of a given cigaret. This is how it is done: In the same dog that inhaled the smoke one finds what dose of nicotine must be injected into the jugular or saphenous vein to produce the same functional disorders. The dose, found by the trial-and-error method, is from 1.5 to 2 mg. This figure does not represent the total amount of alkaloid contained in the smoke but only the portion that is actually absorbed. In the face of this experimental fact, the physician should refuse permission to smoke to the cardiac patient, the patient with high blood pressure, the emphysematous patient, the diabetic patient and the person affected with a disequilibrium of the vegetative nervous system. In any event, on the basis of these experimental results, the inhaling of tobacco smoke should be prohibited as an incontestably dangerous practice.

The Conference of the Red Cross Society

The opening session of the fourteenth Conference of the International Red Cross Society was held in the Palais des Académies, under the chairmanship of Professor Nolf. The conference was attended by delegates of the governments and the national Red Cross societies that subscribed to the Geneva Conventions of 1864 and of 1929 and were represented on the international committee of the Red Cross and in the league of Red Cross societies. These matters, among others, were taken up: the new convention for the amelioration of the treatment of prisoners of war; activities of the Red Cross in naval warfare; article XVI of the Pact and softening of the rigors of blockades; standardization of sanitary equipment; protection of the civil populations against warfare with chemicals; identification marks of sanitary equipment; extension of the Red Cross movement to other countries: (1) creation of new national Red Cross societies; (2) recruiting of members by the national societies; (3) publicity methods for the promotion of the Red Cross idea (publications of the national societies, the public press, the motion picture, radio expositions, truce of the Red Cross); (4) regional and technical conferences; the rôle of the Red Cross as a factor in bringing peoples together; the modes of collaboration of the Red Cross with other national and international institutions working in the field of hygiene; the Junior Red Cross within the national and international organization of the Red Cross; the organization of national societies of the Red Cross to provide for disasters; securing of personnel; Union internationale de secours: (1) progress made toward the creation of the Union internationale de secours; (2) rôle of the national societies of the Red Cross; (3) collaboration of the international Red Cross in the functioning of the union; collaboration of the Red Cross in the creation of first-aid stations along the highways; sanitary aviation: legal aspects of the question; activities of the Red Cross in the domain of the nurses: (1) enrolment of graduate nurses; the formation and the enrolment of voluntary aids; (2) the professional equipment of the nurse: (*a*) the guiding principles in the creation of schools for nurses; (*b*) rôle of the Red Cross in the training of nurses; (3) the creation of a personnel of aids for the promotion of social hygiene.

The Belgian Society of Cancerology

The first session of the Société belge de cancérologie, recently founded, was held, Nov. 29, 1930, in the auditorium of pathologic anatomy at the University of Brussels. This society, which consists at present of thirty charter members, was founded at the suggestion of four university anticancer centers in accordance with a desire expressed in 1924 by the government. Though fully aware of the danger that lies in the creation of too large a number of medical societies and in assigning to each of them the study of a too restricted domain in pathology and clinical science, the charter members of the society considered it to be of advantage to discuss in an assembly of clinicians, pathologists, roentgenologists, biochemists and physicists the researches carried out in Belgium in the domain of biology, the clinical management and the treatment of cancer.

On the other hand, they are taking care not to create an organization whose aims would lead to overlapping with the medical associations already existing, and it seemed to them that a Belgian society of cancerology should be able to collaborate to advantage with other groups. Such collaboration

has already been approved, at the request of the Société de cancérologie, by the Société de chirurgie, the Société de radiologie, and the Société belge d'obstétrique et de gynécologie.

Cases of Ambulatory Plague

Before the Academy of Medicine of Belgium, Mr. Joltrain of Paris recounted recently observations of cases of abortive and ambulatory plague made by him in Paris and its environs during recent years. He emphasized that cases of abortive and ambulatory plague are not always fatal. It appears certain that the facts to which he calls attention are more frequent than would be supposed; that they require further investigation, and that they exist in many other countries. He stresses the point that all physicians should be warned that there are in Europe, in a number of cities, and at all events in England, France and their colonies, unquestionable cases of bubonic plague that commonly evolve without grave symptoms. Only by being forewarned of these facts, and applying immediately hygienic measures (the destruction of rats, and the vaccination of the population in certain areas) can a return of a justly feared epidemic of bubonic plague be forestalled.

ITALY

(From Our Regular Correspondent)

Jan. 31, 1931.

Convention of the League Against Cancer

The second convention of the Lega italiana per la lotta contro il cancro was held recently in Bologna. The chairman of the organization committee of the convention was Prof. Giacinto Viola, senator, medical clinician of Bologna. Professor Rondoni of the University of Milan discussed the etiology and treatment of tumors. The problem of malignant tumors is essentially a cellular problem. The neoplastic cell is profoundly modified in all its functional activities in a permanent and irreversible manner. Hence, all recent etiologic conceptions must take account of the fact that the neoplastic cell is itself the cause of the cancer in the sense that the course of the disease, from the clinical point of view, depends properly on the local cellular perversion. The behavior of the cell is characterized either by its lack of altruism toward the remainder of the diseased organism or by the character of absolute stability that it presents in the changed biologic attitude. The irritation theory may be today understood in the following manner: Various agents (physical, chemical, parasitic), by producing chronic irritations of the tissues, may bring about a true metabolic perversion of the cells, resulting in their acquisition of malignant properties. These maintain themselves then stably in the form of the new type thus originated, even if the exogenous agent has ceased to exert its influence. Thus, there is verified a multiple etiology with a single fundamental pathogenic unit. In addition to the known stimuli from parasites of the higher orders (worms), possibly also certain micro-organisms or unknown viruses may be found among the etiologic causes, but today one no longer discusses the theory of a specific parasite or micro-organism, and everything points away from cancer as due to specific infectious disease.

Professor Morpurgo reported the results of the researches carried out by his pupils on the growth of inoculated tumors. It has been observed that, if nephrectomy is performed after the inoculation of the sarcoma in the other kidney, there is found a greater development in the hyperemic kidney than in the controls. The active hyperemia makes the tumors grow rapidly, whereas anemia acts in the opposite sense.

Professor Tinozzi presented a communication on the production of tumors from material taken from embryos of animals affected with malignant tumors. With pulp from the placenta or from the embryos of healthy animals, positive results were never secured. The results were likewise negative on using embryos and placenta of rats affected with Jensen sarcoma and with the adenocarcinoma of Ehrlich. However, embryonal material of rats affected with sarcoma 37 S gave more than 75 per cent of positive results, causing the development of tumors of a similar type to that presented by the animals that had furnished the material. The use of placenta gave always negative results.

Tinozzi presented also a communication on the relations between hypersplenia and tumors, pointing out that, after hypersplenia, the Jensen sarcomas of moderate size undergo in the first stage a much more rapid evolution. After a brief period of rest, they begin to retrogress and gradually disappear, leaving a small flat scar or a nodule of fibrous connective tissue.

RELATION BETWEEN CANCER AND TUBERCULOSIS

Centanni opened the discussion on the second topic, "The Relations Between Cancer and Tuberculosis." The principle enunciated by Rokitansky that tuberculosis and cancer are antagonistic was later qualified by the same author with the assumption that tuberculosis may be present only when the cancer is ulcerated and in process of dissolution, a sign that the cancerous crasis is about spent. The reverse happens in case the tuberculosis is the earlier disease. Also from clinical observations it appears that not infrequently cases arise in which tuberculosis seems to heal unexpectedly, whereupon there are noted indications of the implantation of a tumor, which is the ultimate cause of death. Interesting data are derived also from observations of alternate hereditary disposition as a consequence of which the children of tuberculous persons remain immune to cancer and vice versa. The contrast between the two morbid types must be sought, according to the speaker, in a modification that one of the two processes, in a state of activity, impresses itself on the body of tissues in a contrary sense to the manner in which the other impresses itself. The speaker carried out experimental researches with this idea in view. He assumes that in the cell there is a special center destined to collect, coordinate and transmit the impulses to multiplication. The tumor constitutes a disease of this center.

D'Agata of Messina reported the case of a man affected with primary cancer of the rectum and who had presented, a few years previously, foci of tuberculosis. Wassileff does not admit the existence of a true antagonism between cancer and tuberculosis. He shares the opinion of those who consider that tuberculous toxins influence the terrain of neoplasms. He had always found the skin reaction to tuberculin positive in cancer patients. Malpurgo in his statistics found the coexistence of cancer and tuberculosis only in one case in a thousand.

CONSTITUTIONAL PREDISPOSITION TO CANCER

The official paper on the third topic, "The Problem of the Constitutional Predisposition to Cancer," was presented by Professor Benedetti. His research was carried out on 850 cancer patients, to whom he applied the constitutional anthropometric method of Viola. The fundamental results of this series of investigations were that cancer has a predilection for persons who, in their constitution, may be regarded as normal or nearly so. This relation between neoplastic predisposition and normality of constitution is established, not only by an examination of the body measurements and by the complex evaluation of the somatic mass, but also by an analysis of the family and personal antecedents of cancer patients, from which it becomes evident that persons who are descended from healthy families and from longlived ancestors are particularly subject to cancer. This relation is apparent not only if the organism of the cancerous is considered in its entirety but also if particularly the organ and the organic system that gave rise to cancer are considered.

Vecchia stated that, during his stay of two years in Albania, he had not observed any influence of malaria on the constitution apt to create conditions favorable to the development of cancer.

Donati remarked that, with regard to exogenic factors in cancer of the genital region, the local factor (represented by traumas, inflammatory lesions, lack of hygiene) is of enormous importance, although it may be agreed that, with respect to the menstrual cycle, it is a question of normal types.

ONCOGENIC DISEQUILIBRIUM AND HISTOGENIC CHEMOTHERAPY IN THE BIOLOGY OF TUMORS

The official paper on the fourth topic, "Oncogenic Disequilibrium and Histogenic Chemotherapy in the Biology of Tumors," was presented by Professor Fichera of Pavia, who gave an account of his research from 1907 until the present. The doctrine of oncogenic disequilibrium explains the development of tumors by the assumption of the rupture of relations between inhibitive substances and stimulative substances of cellular proliferation. On the harmony of these relations are based, according to the theory, normal histogenesis, physiologic regeneration and tissue reintegration. There are two pathogenic factors: the constitutional oncogenic predisposition and the factor of the general condition. The histogenic substances that make for a biologic treatment act by a direct and by an indirect route. The direct means lies in the cytolytic enzymes contained in the tissues and organs, neoplastic isoferments and normal heteroferments. The indirect means consists in the stimulation of the activity of the organs that produce oncolytic substances. The lytic action affects the newly formed neoplastic elements, whereas the regenerated elements remain untouched.

Some of Professor Fichera's pupils presented clinical cases in which treatment with oncolytic substances had given favorable results, leading to the retrogression of tumors that at the time appeared inoperable, recurrent and metastatic.

Centanni does not accept the theory of oncogenic disequilibrium nor the specificity of treatment. In many attempts at biologic treatment made thus far a number of favorable results have been observed, as confirmed by observers worthy of confidence. But with these methods the effect is observed without its being possible to establish a law governing the outcome of the treatment, and without one being able to prevent a recurrence of the disease.

DIAGNOSTIC CENTERS FOR MALIGNANT TUMORS

Professor Gallenga presented the official paper on the fifth topic, "The Present Status of Diagnostic and Therapeutic Centers for Malignant Tumors in Italy." There are now eighteen such centers in Italy, having been created through the efforts of the league; there are also a number of independent institutes of the same significance. Such centers, in order to function properly, must have: (1) a dispensary or ambulatorium for whatever patients present themselves, (2) rooms for clinical observation, (3) laboratory for histologic and clinical researches, (4) laboratory for roentgen and for radium therapy, (5) a surgical service, and (6) statistical service. Not all the centers have as yet developed all these functions.

Commemoration of Pasteur

At Bordighera, where Pasteur lived for several months, special ceremonies were held recently in his honor. The commemoration was attended by many Italian physicians, Frenchmen, Belgians, Americans and Jugoslavs, under the chairmanship of Professor Forgue of the University of Montpellier. Prof. Nicola Pende, medical clinician of the University of Genoa, delivered the official address.

Congress of the Society of Microbiology

The Italian section of the Società internazionale di microbiologia will hold its third national congress in Milan, in April, 1931. The following topics will be discussed: (1) "The Pathogenesis of the Diseases of Plants," presented by Professor Montemartini of the University of Palermo; (2) "The Newer Knowledge of the Biology of the Tubercle Bacillus," presented by Professor Puntoni of the University of Rome, and (3) "Hyperreceptivity in Disease," presented by Professor Zironi of the University of Milan. Professor Pepeu will deliver an address on "Newer Knowledge and Views on Antidiphtheritic Vaccination." On this occasion, there will likewise be a meeting of the Comitato italiano per lo studio dei gruppi sanguigni. Professor Lattes of the University of Modena will discuss the quantitative variations in the specific properties of the several blood groups.

Committee for the Study of Ozena

A national committee for the study of ozena has been created, and Professor Calamida has been chosen president. Papers on the subject of ozena will be prepared and presented at the second International Congress of Otorhinolaryngology, to be held in Madrid in 1932. As the speakers for Italy, the following have been chosen: Professor Torrini of Florence, who will deal with the pathologic anatomy of ozena, and Professor Trimarchi of Verona, who will take up the subject of bacteriology and experimental pathology.

NETHERLANDS

(From Our Regular Correspondent)

March 1, 1931.

Sanitation on Ships

The commission, under the chairmanship of Dr. Joseph Jitta, which was appointed by the minister of labor, commerce and industry, to institute an inquiry in regard to the hygienic precautions taken by the navigation companies, has presented its report, from which the following conclusions are excerpted:

The sanitary administration on board passenger ships and freighters is, in the main, well regulated and controlled. The commission discovered, however, a certain remissness in connection with the obligation of reporting cases of contagious disease occurring on board Dutch ships outside the territorial waters of the Netherlands. It recommends therefore the extension of article 2 of the law pertaining to contagious diseases. The measures adopted to prevent the reception on board of persons who constitute a danger for the transmission of contagious diseases seem inadequate. The medical care on board the transoceanic steamers is, in the opinion of the commission, most excellent. To this class are reckoned steamers that carry more than twelve passengers.

The report deals largely with the question as to whether ships' physicians should have a special training and whether the government should impose certain regulations with respect to the matter. On account of the small number of physicians offering their services, government control of their preparation appears, for the time being, out of the question. In the meantime, the commission recommends that future ships' physicians include in their preparation the courses given in the existing institutes for tropical and maritime diseases. Special difficulties are encountered in case of disease on board ships that carry no physician. In the opinion of the commission, more time should be spent than at present in the schools of navigation and in the schools for machinists on the teaching of the principles of first aid in case of accident, and, furthermore, a course dealing with malaria and dysentery should be added. The commission even goes so far as to suggest that pilots and machinists be instructed in the diagnosis of malaria.

After a voyage, the first-aid kits and the medical chests, the contents of which are determined by the navigation laws, are returned to the navigation company, which verifies the contents and adds what is needed. This concerns the large ships the inspection of which is the duty of the inspector of public health. The inspection of the large ships that have no physician on board is in the hands of the navigation service. A large number of freighters have now a nurse under the orders of the first pilot. In addition, there are physicians at Batavia and at Surabaya.

The examination and the vaccination of the personnel are likewise provided for, as well as the rendering of first aid in case of accident. It would seem to be well worth while to provide ships of large tonnage with a laboratory and a qualified personnel.

Influence of Factory Life on Women

The minister of labor, commerce and industry discussed recently the influences of factory life on the physical and mental condition of women. He pointed out many influences that are manifest: diminution of the mortality in adults and children, diminution of alcoholism, amelioration in housing conditions, over against the influences of the motion pictures, public dances, and war and postwar conditions.

The good influences of factory work may be summed up as follows: the habit of regular employment, orderliness, cleanliness, greater well being, increased knowledge of human relationships and of human society in general, a higher sense of independence and of self-respect. The bad influences are: diminution of good taste, lack of opportunities to improve the home, lessened attachment for the home, the probability of being brought into contact with corrupting elements, brutalizing and unhealthy work, too much freedom, and, as a corollary, a tendency to luxury and extravagance. These dangers are, however, the subject of careful solicitude on the part of the inspection of labor, as may be seen by the chapters dealing with these problems in their annual reports and the measures adopted to combat these conditions. According to recent reports, it appears that in a great number of factories the women are subjected to periodic medical examinations, with the result that a great number of them receive needed medical advice and treatment. Furthermore, attempts to improve their condition through study find, at the hands of the inspection of labor, every encouragement and support. In view of the opportunities offered, one might wish that the inspections were more frequent.

The Association of Social Medicine

The Netherlands General Association of Social Medicine met at the open-air school, Clio Street, Amsterdam. The open-air school, which was erected in accordance with a special plan, is for the use of children who are normal in both mind and body. Some of the peculiar features of the school rooms are: They can be ventilated from three sides, the walls being chiefly of glass; thus the principle of heating used in greenhouses finds its application, which is a great saving of fuel. The radiators of the central heating plant are attached to the ceiling, the architect thus imitating nature, since the natural heat comes from above. With this mode of heating, though the temperature of the outside air is low, the children feel that they are surrounded by an agreeable warmth, even when one or more of the walls are open. One condition is necessary—there must be no drafts. This system of heating has been used in Great Britain and the members present were greatly interested in it.

In the evening there was another session under the chairmanship of Dr. Vanderhoeve. Professor Baart-de la Faille referred to the lack, at the university, of instruction in social medicine. He regretted the fact, as the task of the physician is being extended more and more toward the field of social medicine. Basing his opinion on the conclusions of Abraham Flexner, he entered a plea in favor of bringing the student into closer relation with society. The student should be thoroughly familiar with social medicine, the practical application of laws pertaining to accidents, the laws pertaining to health insurance, and legislation concerning occupational diseases.

Professor Van Loghem discussed the problem of the special training of the physician so that he may become a practitioner initiated in the workings of social medicine, and, on invitation of the management, he spoke on the results secured from the courses given in Amsterdam. According to Van Loghem, this training can be acquired in the course of a physician's daily practice; according to others, such training should be obtained through short periods spent in the consultation bureaus or in similar institutions. The author considered that, above all, the student should acquire a fundamental knowledge in the domain of preventive, technical and hygienic medicine, sanitary organization, methods of combating epidemics, including a knowledge of social hygiene, medicosocial laws and the organizations that have to do therewith. The author then raised the question as to how such education should be given in his country. The creation of a central institute does not appeal to him particularly. He thinks it would be better for the faculties of medicine in the various universities to assume the task. As regards the course in social medicine at the University of Amsterdam, the author regards it as provisional.

Undulant Fever in the Dutch East Indies

Although several cases of contagious abortion have been observed among the cattle, there has been some uncertainty as to the existence of undulant fever and its contagion among human beings. In 1925, Kirschener discovered that the serum of certain domestic animals on the farms had an agglutinant action on *Brucella abortus*. E. R. K. Rodenwald and A. J. Cohen described four cases in which the clinical and serologic diagnosis of undulant fever could be made; but they did not succeed in finding the bacillus. Thus far the veterinary service has not found in goats any infection that can be ascribed with certainty to the action of *Bacillus melitensis*. On the other hand, extensive serologic researches in cattle, with a prophylactic purpose in view, have demonstrated the presence of the bacillus in the stables of cows. Although there is no proved direct relation between the cases cited and the infected cattle, the author is of the opinion that everything seems to indicate that these cases must be considered as due to an infection with *Brucella abortus*.

Night Work in Bakeries

The chamber of commerce of Rotterdam addressed to similar organizations in thirteen countries the question as to the right to sell fresh bread before 10 a. m. In the Netherlands the delivery of fresh bread in the early morning is prohibited. The following responses were received: Great Britain, no regulations. Switzerland, no regulation. Spain, absolute liberty with regard to the hour of delivering fresh bread. Belgium, no regulation; fresh bread may be had in Brussels any time after 6 a. m. France, same as in Belgium. In Italy, according to the laws in force, work in the bakeries is prohibited between 9 p. m. and 4 a. m.; fresh bread may be delivered before 6 a. m. Austria, no legal regulation. In Sweden, during the World War, there was a prohibition against delivering bread the same day it was baked, but at present there are no restrictions. In Norway, the bakeries are not permitted to begin work before 6 a. m.; the hour for the delivery of fresh bread is unrestricted. In Czechoslovakia, the law provides that bread must be delivered cold to the customer; delivery of bread in the home is practically unknown. In Hungary, according to the law, all work in the bakeries is prohibited between 9 p. m. and 4 a. m.; persons under 18 years of age may not start work before 5 o'clock; fresh bread may not be delivered before 6:45 a. m. In Germany, according to law, all work in the bakeries must be suspended between 10 p. m. and 6 a. m.; the local authorities may, however, reduce this period of rest by one hour. In Prussia it is stipulated that one may commence work at 5 a. m.; one cannot, however, deliver bread before 7 a. m.

From the foregoing, it appears that the Netherlands breakfast does not occupy an enviable place, from the international point of view. It is thus, whether it will or no, a pioneer in the amelioration of conditions in the baking industry. It is to be hoped that the future will bring an improvement in the methods of keeping bread fresh.

Marriages

JAMES MARSTON NELSON, Spokane, Wash., to Miss Elsa Adele Schreiber of Grand Rapids, Mich., March 17.

LEO T. MURPHY, Minneapolis, to Miss Catherine Strickland of Beacon, N. Y., recently.

ERNEST BUFFONE to Miss Josephine Jovino, both of Brooklyn, April 7.

Deaths

Edward Campbell Davis, Atlanta, Ga.; University of Louisville (Ky.) School of Medicine, 1892; member of the Medical Association of Georgia and the American College of Surgeons; emeritus professor of obstetrics and gynecology, Emory University School of Medicine; past president of the Fulton County Medical Society; served during the Spanish-American and World wars; one of the founders and on the staff of the Davis-Fischer Sanitarium; formerly on the staff of the Grady Hospital; aged 63; died, March 11, of pneumonia, heart disease and arteriosclerosis.

Ralph Waldo Lobenstine ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1900; member of the American College of Surgeons; at one time instructor in clinical gynecology at his alma mater; formerly regional consultant in obstetrics, New York State Department of Health; aged 56; on the staffs of the Sloane Hospital for Women, York House, New York Nursery and Child's Hospital and St. Luke's Hospital, where he died, March 21.

George William Adair ⊕ Colonel, U. S. Army, retired, Fayetteville, Ohio; University of Michigan Medical School, Ann Arbor, 1870; entered the Army as an assistant surgeon in 1874; was promoted through the various grades to that of colonel in 1905, and retired for disability in line of duty in 1909; aged 82; died, February 26, of bronchopneumonia and myocarditis.

Nettie Klein ⊕ Texarkana, Texas; Gate City Medical College, Texarkana, 1904; member of the Associated Anesthetists of the United States and Canada; on the staff of the Texarkana Hospital; past president of the Bowie County Medical Society; aged 66; died, February 5, of cerebral hemorrhage.

James Alexander MacLeod ⊕ Buffalo; L.R.C.P., London, and M.R.C.S., England, 1901; member of the American College of Surgeons; on the staffs of the Buffalo City Hospital and the Millard Fillmore Hospital; aged 56; died, March 21, of hypertensive arteriolar nephrosclerosis.

Ward A. Smith, Otterbein, Ind.; Kentucky School of Medicine, Louisville, 1892; member of the Indiana State Medical Association; for seventeen years president of the Benton County Medical Society; aged 65; died, March 8, of injuries received in an automobile accident.

Edward Field Parsons, Tunghsien, Peiping, China; University of Michigan Medical School, Ann Arbor, 1922; member of the American Board of Missions; aged 33; died, in March, at the Peiping Medical College Hospital, of pneumonia.

Nellie Wentworth Cargill ⊕ Milwaukee; Northwestern University Woman's Medical School, Chicago, 1893; aged 67; died, March 13, in Chicago, of empyema of the gallbladder and carcinoma of the pancreas, stomach and duodenum.

Frederick C. Rust, Brownsburg, Ind.; Cincinnati College of Medicine and Surgery, 1891; member of the Indiana State Medical Association; aged 63; died, March 9, in the Methodist Hospital, Indianapolis, of cerebral hemorrhage.

Frank B. Crowell, Lawrence, Mich.; Eclectic Medical Institute, Cincinnati, 1897; Bennett Medical College, Chicago, 1909; member of the Michigan State Medical Society; aged 62; died, February 12, of pneumonia.

Edward J. Purtell ⊕ Milwaukee; Rush Medical College, Chicago, 1891; associate clinical professor of surgery, Marquette University School of Medicine; aged 67; died, March 13, of myocarditis.

Horace Mayo Boyden, Boston; University of Michigan Medical School, Ann Arbor, 1930; aged 23; intern, Peter Bent Brigham Hospital, where he died, February 3, of agranulocytic angina.

George Gable Harman ⊕ Huntingdon, Pa.; Jefferson Medical College of Philadelphia, 1880; formerly on the staff of the J. C. Blair Memorial Hospital; aged 76; died, March 20, of nephritis.

Francis Denman Ormes, Jamestown, N. Y.; Western Homeopathic Medical College, Cleveland, 1863; formerly member of the city board of health; aged 92; died, March 3, of senility.

John W. Hawes, Renton, Pa.; University of Buffalo School of Medicine, 1895; member of the Medical Society of the State of Pennsylvania; aged 61; died suddenly, March 9, of heart disease.

Tolbert Fanning Yater, Cleburne, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1910; served during the World War; aged 55; died, February 10, of pneumonia.

Andrew Jackson Perry, Alexandria, Ind.; Medical College of Indiana, Indianapolis, 1884; past president of the Madison County Medical Society; aged 76; died, March 2, of septicemia.

Walter Homer Holliday, Birmingham, Ala.; University of the South Medical Department, Sewanee, Tenn., 1901; aged 63; was found dead, March 4, of a self-inflicted bullet wound.

William E. Pennington, Greenville, Texas; University of Louisville (Ky.) School of Medicine, 1884; member of the State Medical Association of Texas; aged 71; died, January 28.

Perry Franklin Price, Indianola, Iowa; Iowa Eclectic Medical College, Des Moines, 1888; formerly member of the school board; aged 77; died, March 8, of heart disease.

Frederick John Laird, Portland, Ore.; Michigan College of Medicine and Surgery, Detroit, 1897; aged 59; died, February 14, of coronary occlusion and arteriosclerosis.

Lawrence Bassett Schneider ⊕ Fort Wayne, Ind.; University of Michigan Medical School, Ann Arbor, 1923; aged 32; died, March 10, of septicemia following pharyngitis.

Leonard Rice Stone, Taff, Ala.; Chattanooga (Tenn.) Medical College, 1905; member of the Medical Association of the State of Alabama; aged 70; died, February 13.

Walter L. Hughston, Ethel, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1890; aged 62; died, February 27, of heart disease.

John A. Bellamy, Wellsville, Mo.; Missouri Medical College, St. Louis, 1890; aged 65; died, March 5, in the Audrain Hospital, Mexico, of cerebral hemorrhage.

Daniel Franklin Curtis ⊕ Rochester, N. Y.; Bellevue Hospital Medical College, New York, 1879; aged 78; died, March 5, of chronic myocarditis and arteriosclerosis.

William Milton De Mott, Otwell, Ind.; Cincinnati College of Medicine and Surgery, 1871; Civil War veteran; aged 85; died, March 3, of bronchopneumonia.

Hugh McIntyre, Buffalo; Western University Faculty of Medicine, London, Ont., Canada, 1891; aged 74; died, March 18, of bronchopneumonia and myocarditis.

J. T. Magill, Erie, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1892; aged 69; died, March 10, of general peritonitis and carcinoma of the stomach.

William Smalley Crosby, South Bend, Ind.; Hering Medical College, Chicago, 1897; aged 77; died, February 21, in St. Joseph's Hospital, of septic meningitis.

Abbie Gertrude Hinckley Lewis, Newport, N. Y.; New York Medical College and Hospital for Women, 1894; aged 81; died, March 7, of mitral regurgitation.

Isadore Lewis Jerge, East Aurora, N. Y.; University of Buffalo School of Medicine, 1924; aged 38; died, March 21, of myocarditis and valvular disease.

Thomas Francis Spink ⊕ Washington, Ind.; Miami Medical College, Cincinnati, 1901; on the staff of the Daviess County Hospital; aged 65; died, March 4.

Martin L. Bott, Westminster, Md.; Jefferson Medical College of Philadelphia, 1872; aged 84; was found dead in bed, March 9, of cerebral hemorrhage.

M. Chagnon, Sherbrooke, Que., Canada; Laval University Faculty of Medicine, Quebec, 1898; died, March 18, in St. Petersburg, Fla., of myocarditis.

Charles W. Service, Chengtu, Szechwan, China; Trinity Medical College, Toronto, Ont., Canada, 1899; died, in February, of intestinal obstruction.

John Edward Lincoln ⊕ Lacey Spring, Va.; Bellevue Hospital Medical College, New York, 1877; aged 74; died, March 15, of carcinoma of the throat.

Emil J. Goldring ✠ Philadelphia; University of Bucarest School of Medicine, Bucarest, Roumania, 1906; aged 55; died, March 20, of heart disease.

Edward C. Schnittker, St. Louis; Missouri Medical College, St. Louis, 1898; aged 56; died, March 4, in the Christian Hospital, of heart disease.

Edgar Shirley Perkins ✠ Baltimore; University of Maryland School of Medicine, Baltimore, 1907; aged 58; died, March 7, of heart disease.

George Baringer Slifer, Philadelphia; Jefferson Medical College of Philadelphia, 1894; aged 57; died, March 10, of an accidental gunshot wound.

John Franklin Benjamin, Kenduskeag, Maine; Dartmouth Medical School, Hanover, N. H., 1884; aged 73; died, January 19, of arteriosclerosis.

Albert G. Burwell ✠ Whitehall, Mich.; Detroit College of Medicine, 1889; aged 71; died, March 2, in the Mercy Hospital, Muskegon, of pneumonia.

George Amédée Codère, Sherbrooke, Que., Canada; Laval University Faculty of Medicine, Quebec, 1892; aged 62; died, recently, of myocarditis.

Lorenzo C. Voss, Columbus, Neb.; Homeopathic Medical College of Missouri, St. Louis, 1888; aged 68; died, January 28, of coronary thrombosis.

Sherwin Gibbons, Lancaster, Calif.; Harvard University Medical School, Boston, 1898; aged 59; died, March 15, of coronary thrombosis.

William Daniel ✠ Corydon, Ind.; Louisville (Ky.) Medical College, 1875; county health officer; aged 78; died, March 5, of heart disease.

B. W. Stilwell, Yonkers, N. Y.; New York Homeopathic Medical College and Hospital, 1887; aged 72; died, March 18, of myocarditis.

John Judkins Jones, Cincinnati; Cincinnati College of Medicine and Surgery, 1876; aged 81; died, March 5, of myocarditis.

James H. Cannon, South Bend, Ind.; Missouri Medical College, St. Louis, 1881; aged 74; died, March 10, of heart disease.

John Weinlander, Chicago; Rush Medical College, Chicago, 1891; aged 70; died, March 27, probably of organic heart disease.

Julia Alice Peterson, Ruth, Mich.; University of Michigan Medical School, Ann Arbor, 1891; aged 68; died, January 29.

George Richter ✠ St. Louis; University of Giessen, Germany, 1874; aged 78; died, March 12, of cerebral hemorrhage.

James Yates Smith, Sparkman, Ark.; Memphis (Tenn.) Hospital Medical College, 1908; aged 59; died, Dec. 27, 1930.

E. Caldwell Linn, Los Angeles; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 81; died, January 4.

George Henry Parker ✠ Hanover, N. H.; Dartmouth Medical School, Hanover, 1895; aged 57; died, January 2.

Dudley Webb ✠ Cincinnati; Medical College of Ohio, Cincinnati, 1899; aged 61; died, March 17, of heart disease.

John P. Clark, Perryville, Mo.; St. Louis Medical College, 1881; aged 81; died, January 22, of chronic myocarditis.

Charles H. Bacon, Hutchinson, Kan.; Medical College of Indiana, Indianapolis, 1883; aged 73; died, in January.

Harry Bond Killough ✠ Pueblo, Colo.; Denver and Gross College of Medicine, 1908; aged 47; died, January 21.

Charles Cyrus Schiedel, Detroit; Detroit Homeopathic College, 1906; aged 70; hanged himself, February 6.

Albert A. Greenlee, Dyersburg, Tenn.; Meharry Medical College, Nashville, 1894; aged 55; died, January 25.

Joseph Kennett Cole, Lamar, Mo. (licensed, Missouri, 1884); aged 79; died, February 2, of pneumonia.

William McIntyre, Lincoln, Neb.; Drake University College of Medicine, 1887; aged 84; died, January 1.

Bernard Goodman ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1927; aged 26; died, January 18.

Albert Lee Franklin, Atlanta, Ga.; Atlanta Medical College, 1892; aged 61; died, January 15.

L. B. C. Wagner, Knoxville, Tenn. (licensed, Tennessee, 1894); aged 76; died, February 27.

Minnie Jahp, Chicago; Chicago Medical School, 1916; died, Dec. 10, 1930.

Bureau of Investigation

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Walker's Old Indian Fever Tonic, Etc.—Cox and Simpkins of Atlanta, Ga., shipped in September, 1929, a quantity of Walker's Old Indian Fever Tonic, Walker's Dead Shot Colic Remedy, Walker's Indian Liver and Kidney Tonic, and Walker's Pain-I-Cure—all of which were declared misbranded. The Walker's Old Indian Fever Tonic was found to consist essentially of epsom salt, quinine sulphate, iron (ferric) chloride, alcohol and water; Walker's Dead Shot Colic Remedy was found to contain wood alcohol (7.4 per cent), ethyl alcohol, chloroform and sassafras oil; Walker's Indian Liver and Kidney Tonic was found to consist essentially of epsom salt, quinine sulphate and iron (ferric) chloride, while Walker's Pain-I-Cure consisted essentially of chloroform, alcohol and oil of sassafras. The curative claims for the various preparations were declared to be false and fraudulent, and in January, 1930, judgments of condemnation and forfeiture were entered and the court ordered that the products be destroyed.—[*Notice of Judgment 17091; issued December, 1930.*]

Barker's Laxative Cold Tablets.—Thomas F. Burch and Company, Inc., Washington, D. C., sold and offered for sale a quantity of Dr. Barker's Laxative Cold Tablets that were declared misbranded. Analysis showed the preparation to contain acetanilid, caffeine, red pepper and podophyllin. The claim that the product was a remedy for influenza was declared false and fraudulent, and in February, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17099; issued December, 1930.*]

Watkin's Cold Tablets.—The J. R. Watkins Company shipped at various times between July and December, 1929, a quantity of Watkin's Laxative Cold and Grippe Tablets that were declared misbranded. Analysis showed the tablets to consist essentially of acetanilid, cinchona alkaloid, resinous material and starch. The claim that this was a remedy for influenza was declared false and fraudulent. In May, 1930, the J. R. Watkins Company of Winona, Minn., admitted the allegations, judgment of condemnation and forfeiture was entered, and the court ordered that the product be released to the Watkins Company on payment of costs and the execution of a bond of $3,000, conditioned in part that the preparation be relabeled truthfully.—[*Notice of Judgment 17154; issued January, 1931.*]

F E I Solution.—The F E I Corporation, Pittsburgh, Pa., shipped in July, 1929, a quantity of F E I Solution that was declared misbranded. The preparation was found, on analysis, to consist essentially of boric acid, glycerin, a small amount of copper sulphate (blue vitriol), alcohol and water, flavored with oil of cassia. The claims that the stuff was a "life preserver for teeth and gums" and a specific for pyorrhea were declared false and fraudulent and in March, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17166; issued January, 1931.*]

Life for Blood and Nerves.—In October, 1929, the Standard Drug Company, Spartanburg, S. C., shipped a quantity of Life for Blood and Nerves, which was declared misbranded. The preparation was found to be, essentially, extracts of plant drugs, including a laxative, in about 13 per cent of alcohol and water. It was labeled as containing 18 per cent of alcohol. The claims that it was a valuable nerve tonic and purifier, that it would improve digestion and restore vitality, that it would make weak people strong, increase manly vigor, etc., were declared false and fraudulent, and in March, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17169; issued January, 1931.*]

Cre-Cal-Co.—The Creo Chemical Company of San Antonio, Texas, shipped in October, 1925, a quantity of Cre-Cal-Co that was declared misbranded. Analysis showed the product to consist essentially of small amounts of creosote, traces of salts of calcium, magnesium and sodium, phosphates, chlorides and sulphates in water, colored with a red dye. The claims that it was a remedy for influenza, pneumonia, chronic catarrh, tuberculosis, etc., were declared false and fraudulent, and in April, 1930, judgment of condemnation was entered and the court ordered that the product might be released to the Creo Chemical Company for relabeling truthfully, on the execution of a bond and the payment of the costs.—[*Notice of Judgment 17170; issued January, 1931.*]

H. H. H. Liniment.—H. H. Moore and Sons, Stockton, Cal., shipped in October, 1929, a quantity of H. H. H. Liniment that was declared misbranded. Analysis showed the product to consist essentially of volatile oils, including camphor and sassafras, with extracts of plant drugs, ammonia, soap, 51 per cent of alcohol and water. It was declared misbranded, first, because the label stated that it contained 65 per cent of alcohol and, further, because the claims that it was a remedy for coughs, influenza, neuralgia, bunions, diarrhea, toothache, stiff joints, etc., were false and fraudulent. In May, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be delivered to H. H. Moore and Sons, who had appeared as claimants for the property and had paid the costs and executed a bond to the effect that the preparation should not be sold in violation of the federal Food and Drugs Act.—[*Notice of Judgment 17171; issued January, 1931.*]

Vapo-Cresolene.—The Vapo-Cresolene Company of New York shipped in November, 1929, and January, 1930, a quantity of Vapo-Cresolene that was declared misbranded. Analysis showed that it consisted essentially of cresol with small amounts of water and neutral oil. The claims that the product was a treatment for whooping cough, spasmodic croup, bronchitis, bronchial asthma, hay fever, influenza, etc., were declared false and fraudulent "since the article contained no ingredient, or combination of ingredients, capable of producing the effects claimed." In April, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17167; issued January, 1931.*]

Prunidia.—The Standard Drug Company, Spartanburg, S. C., shipped in October, 1929, a quantity of Prunidia that was declared misbranded. Analysis showed the product to consist essentially of extracts of plant drugs, with about 12 per cent of alcohol. The preparation was declared misbranded, because the label declared that it contained 18 per cent of alcohol and because the claim, that it was a remedy for various female ailments, was false and fraudulent. In March, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17169; issued January, 1931.*]

A. D. S. Pile Treatment.—The American Druggists' Syndicate, Long Island City, N. Y., shipped in March, 1928, a quantity of A. D. S. Pile Treatment that was declared misbranded. Analysis showed the preparation to consist essentially of an ointment with a petrolatum base, containing small amounts of tannin, carbolic acid (phenol) and a tar derivative. The claim that this was a valuable remedy for the local treatment of internal piles was declared false and fraudulent and in February, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17173; issued January, 1931.*]

A. D. S. Hepatic Salts.—The American Druggists' Syndicate, Long Island City, N. Y., shipped in March, 1928, a quantity of A. D. S. Hepatic Salts that were declared misbranded. Examination showed the product to consist essentially of glauber's salt, baking soda, sodium phosphate, table salt, citric acid and a small amount of a lithium compound. The claims that the preparation was especially indicated in uric acid diathesis and that it was highly beneficial and was of value in constipation and the various troubles arising from imperfect digestion, disordered stomach, etc., were declared false and fraudulent. In February, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17173; issued January, 1931.*]

Bal-Sa-Me-A.—The Balsamea Laboratories, Inc., San Francisco, shipped in October, 1928, and April, 1929, a quantity of Bal-Sa-Me-A that was declared misbranded. The federal chemists reported that analysis showed it to consist essentially of extracts of plant drugs, including rhubarb and leptotaenia, a trace of chloroform, alcohol (2.5 per cent), sugar and water. It was declared to be misbranded, first, because the statement that it was a pure vegetable preparation made from a newly-discovered plant found growing in the snow belt on the eastern slope of the Sierra Nevada Mountains was false and misleading, while the claim that it was a remedy for croup, bronchitis, influenza and various other conditions was false and fraudulent. In July and December, 1929, judgments of condemnation and forfeiture were entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17066; issued November, 1930.*]

Correspondence

ANOTHER TREATMENT FOR ATHLETE'S FOOT

To the Editor:—In the many years that I was in general practice at Salina, Kan., I saw the average number of dermatoses, and treated them in the usual methods with the usual good results. However, during the past summer I had my first personal experience with so-called athlete's foot, which became progressively worse under treatment. Finally, realizing that gasoline is a most active fungicide, in desperation I immersed my feet for six to eight seconds in ordinary commercial "gas," with practically instantaneous relief. While I repeated this foot bath the next day, the irritation had in no way recurred, nor has it to date.

Because I have no way of carrying this observation further, since I am on the retired list, and because I believe this observation might be of interest to others, I am asking you to include this in your correspondence column. I should be pleased to hear from any physicians who may elect to use this simple therapy, as to their results.

J. R. CRAWFORD, M.D., Los Angeles.

IMPORTANCE OF CASE RECORDS OF WAR VETERANS

To the Editor:—I have been liaison officer for the American Legion at the U. S. Veterans' Hospital, Whipple, Ariz., for a period of three years. During that time, I have often been embarrassed in the prosecuting of disabled World War veterans' claims for government compensation by the fact that many medical doctors had destroyed their office records for the years 1918 to 1930, inclusive. Or, in some instances in which physicians had died in the meantime, the widow or the administrator of the estate had destroyed their records.

I think it is important that all physicians should be warned to preserve their records of treatment of disabled World War veterans, especially from 1918 to date, and in cases in which physicians die, it would also be well to preserve the records carefully for future reference.

As you well know, the Veterans' Bureau will accept statements from competent medical practitioners only, and many deserving disabled World War veterans are deprived of their just rights when records have been destroyed by physicians.

WILLIAM J. LADYMAN, JR., Whipple, Ariz.
Liaison Officer, Ernest A. Love Post No. 6.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF SYPHILIS IN PATIENT WITH BEGINNING CEREBROSPINAL SYMPTOMS

To the Editor:—A white man, aged 47, married, whose previous history was negative and who had always been healthy and athletic, contracted syphilis in February, 1928. The blood Wassermann reaction was 4 plus, March 15. On this date a course of nine injections of neoarsphenamine at six-day intervals was started and completed on May 9, at which time an injection of mercuric salicylate was given in the buttock. This double injection caused a severe reaction with abdominal pain, vomiting, and pain and tenderness over the liver. There were clay-colored stools for several days. All treatment was stopped until June 16, when a weekly course of bismuth compounds consisting of fifteen injections was started. These were completed, September 29. Dec. 18, 1928, the Wassermann reaction was negative. Starting Jan. 14, 1929, a course of six doses of neoarsphenamine followed by eight injections of bismuth was given. This was finished April 24. June 29 the Wassermann reaction was negative. Aug. 29, 1929, the Wassermann reaction was 2 plus. August 31, a course of seven neoarsphenamine and nine bismuth injections was given. This was finished, Jan. 15, 1930. January 23, the Wassermann reaction was slightly positive. At this time the patient had headaches and several convulsive seizures with loss of consciousness. Three intravenous injections of sodium iodide in 2 Gm. doses stopped these. A course of forty mercury rubs was now given, as the patient was away on business. On his returning, April 21, a course of seven silver neoarsphenamine injections was started, followed by five injections of mercuric salicylate. He again had to leave the city and was given a course of forty mercury rubs. September 10, a course of twelve bismarsen injections was stated and completed, Dec. 26, 1930. A Wassermann test, Jan. 12, 1931, was 4 plus. The treatment, especially during the past year, has been varied and intensive, but I do not appear to find any combination of drugs that will break the positive Wassermann reaction, which I know is what the patient wants. Will you please discuss this case and advise what plan of treatment to use to make the reaction negative? The patient feels and looks well and works every day, often long hours, in a position carrying heavy responsibilities. Up to two years ago he was a heavy user of alcohol. There has been no recurrence of symptoms involving the nervous system, and I have not done a spinal Wassermann test on account of the blood finding. Kindly omit name and address.

M.D., Oregon.

ANSWER.—The explanation of the present state of the patient described lies in all probability in the presence of a neurosyphilis, unrecognized in its early stages because a spinal fluid examination was not done, and progressing probably to the point of active clinical manifestations (convulsions and headaches in January, 1930, and the resistant positive blood Wassermann reaction). In all probability this patient had an early involvement of the nervous system, predisposed to by the rest periods introduced into his course, in part because of the tendency to use the blood Wassermann reaction as a guide to treatment. There is now a definite accumulation of clinical evidence to show the seriousness of allowing any patient with early syphilis, irrespective of the blood Wassermann reactions, to rest completely from treatment at any time during at least the first year or eighteen months of his course. The safest rule consists in disregard of the blood Wassermann reactions, continuous and consistent treatment of the patient with arsphenamine, or a bismuth or mercury compound without rest intervals until the patient has been symptomatically and serologically negative for a year; and examination of the spinal fluid before any rest period, however short, is allowed. While the patient has been symptomatically and serologically well, no conclusion as to the appropriate treatment in his case from this point on can be drawn until his spinal fluid examination is adequately performed. The physician in this case should be cautioned not to be satisfied merely with a "spinal Wassermann" but to require the performance of all four of the conventional tests on the spinal fluid when submitted. Under no circumstances should there be any hesitation about performing a spinal fluid examination merely because the patient has a positive blood Wassermann reaction. In fact, the persistent positive blood Wassermann reaction with a history of clinical symptoms such as this patient gives makes it mandatory rather than otherwise to perform an examination of the spinal fluid at once. If the report on the fluid is negative, the possibility of an isolated cerebral lesion is not thereby done away with and the patient should continue treatment with bismuth, iodide and mercury for at least another year.

POSSIBLE CEREBRAL ARTERIOSCLEROSIS

To the Editor:—I have a woman patient, aged 62, who has had periodic headaches most of her life. About a year ago these headaches changed in character and became more severe. She complains of a constant "knocking" in her head as well as a klinking noise and a roaring that drops from her head into her ears. Both sides of her head are involved. About six weeks ago she developed a rather typical picture of tic douloureux on the left side. There was a trigger zone, and it was difficult to open her mouth. Morphine and pantopium hydrochloricum gave her some relief. She recovered from the tic but continues to have her severe symptoms. The urine and nonprotein nitrogen are normal. Her blood pressure is 110 systolic and 70 diastolic. Study of the eyegrounds reveals a slight amount of sclerosis. The teeth are out. Hearing is not impaired. Bone conduction is present. Can you enlighten me as to the cause of these severe and peculiar headaches and what might be done to help her? Please omit name.

M.D., Indiana.

ANSWER.—The syndrome that has been described suggests cerebral arteriosclerosis, which may go along with a low blood pressure. The acute disturbance that developed is possibly due to a small hemorrhage by diapedesis into the neighborhood of the gasserian ganglion.

The only possible therapy is one directed to the vascular condition and that, of course, is limited. Potassium iodide may be used without much avail. Sedatives such as bromides or phenobarbital frequently relieve the headaches and dizziness.

TREATMENT OF FRACTURE OF PATELLA

To the Editor:—I am treating a man, aged 53, who suffered a fracture of the patella. The fragments are in good position; they are moderately separated. The fracture was treated conservatively with a posterior, well-padded splint, and the fragments were pulled together by the use of adhesive plaster in the form of an X. This is to be changed to a plaster-of-paris cast at the end of about three weeks in splints and adhesive plaster and the patient is to be allowed up with crutches. The questions I want to bring up are: Is this treatment rational and what is the possibility of formation of callus, with good union of fragments? What is the possibility of good function of the knee joint? Will the knee joint be weak? What is the possibility regarding fracture? How long will it be necessary to keep the cast on? If you have any suggestions as to treatment, added or otherwise, will you make them? Please omit name.

M.D., New York.

ANSWER.—The treatment used for immobilization is rational but need not be maintained after two or three weeks. The patient should be encouraged to walk with some support to the knee, such as a thick cotton flannel bandage. A fibrous or cartilaginous union of the patella will probably result with a good functional result and without weakness, provided early motion is started.

Complete immobilization is not usually necessary after three or four weeks, depending somewhat on the width of the separation. If separation is over 1.5 cm., open operation is usually indicated. It should be performed within a few days and should consist of (1) evacuation of the blood from the joint, (2) suturing the torn lateral ligaments, and (3) uniting the fragments of the patella by some method, such as encircling or penetrating them by heavy chromic catgut or kangaroo tendon.

Immobilization may then be maintained for only a few days when walking and active mobilization may be started. Penetrating needles and various types of tongs have been used to approximate the bone fragments, but none of them accomplish the two most important things, the evacuation of the blood and the union of the torn lateral ligaments. The results from operation are usually more satisfactory because the nonoperative methods do not permit of early and active mobilization with a minimum of disability.

SILICOSIS AND WORKMEN'S COMPENSATION

To the Editor:—Will you please advise me whether a patient who has acquired a silicosis of the lung working in a foundry is entitled to compensation from the respective company. Please omit name.

M.D., Michigan.

ANSWER.—Compensation for industrial silicosis is provided for in California, North Dakota, Wisconsin, Massachusetts and Connecticut. In these states all occupational diseases are compensable under the legal acts related to employers' responsibility. Compensation will probably not be obtained from the respective company in which the occupational disease was sustained but indirectly from an insurance carrier or from the state insurance fund. All other states either have no provision for occupational disease compensation or operate under the schedule system, which limits coverage for occupational disease to selected items. Silicosis is not known to be included on any lists of coverage.

Marked opposition is encountered at the hands of manufacturers and industrial organizations at every attempt to procure the listing of silicosis for compensation purposes. The alleged reason for this is that silicosis does not readily lend itself to diagnosis and thus paves the way for improper claims. As a matter of fact, roentgen examination in silicosis permits of diagnosis of silicosis on as exact a basis as attends the diagnosis of lead poisoning by any method.

The provisions for compensation for industrial injury in most states, together with provisions for compensation for some occupational diseases in a few other states, have created extensive legal uncertainty as to the rights of the worker at common law in relation to conditions unprovided for. A few favorable common law decisions allowing damages for workers incurring characteristic occupational disease will go far toward stimulating an interest on the part of manufacturers in the procurement of generalized application of provisions for occupational diseases similar to those now existing in most states for industrial injuries.

CHRONIC PHARYNGITIS POSSIBLY DUE TO SYPHILIS

To the Editor:—A single man, aged 26, complains of dryness of the throat with occasional momentary hoarseness, which is relieved by clearing his throat. His pharynx is congested with many small newly formed blood vessels—a typical chronic pharyngitis. All other oral and nasal examinations are negative. General examination shows a papular rash confined to the thighs, legs and arms about the elbows. I find that the young man thinks that he has syphilis and has been reading a great deal on this subject. He has been losing some weight and is pale and anemic looking; he has postcervical glandular enlargement, the glands being hard and shotty. The inguinal glands are slightly enlarged, though he has never had a chancre. However, he has had through various sources and at reliable places negative blood Wassermann reactions—two at the time of the rash, one six weeks previous, and one eight weeks previous. The last intercourse took place six months ago. 1. Would it be likely to be syphilis, considering the number of negative Wassermann reactions? 2. What may I do to prove conclusively to him and to myself that he has or hasn't syphilis? 3. Would you consider a therapeutic test? Kindly omit name.

M.D., Connecticut.

ANSWER.—1. The condition is probably not syphilitic. So far as the pharynx is concerned, the condition is probably chronic pharyngitis.

Some authorities use a provocative test by injecting 0.3 Gm. or even 0.6 Gm. (depending on the size and weight of the patient) of arsphenamine, and then repeating the Wassermann test. There is, however, danger of producing a Herzheimer reaction unless mercury is used some time before injecting the arsenic preparation.

It is doubtful whether a therapeutic test will be of much value in the condition mentioned. In view of the general signs of pallor, loss of weight and adenopathy, a careful study of the blood picture of the patient is important, as it is quite possible that leukemia or some other disease of the blood system is present that might account for the symptoms mentioned.

APHASIA

To the Editor:—A man, aged 40, four months ago, on being called for breakfast could not answer. A physician was called and found that there was definite weakness in the right arm (the patient is right-handed), and that the patient was unable to talk. There has been some improvement in the right arm and the patient can write fairly well but not as well as before the attack. He seems to understand what is said to him. His wife states that he had a fall several days before the paralysis and aphasia, which he of course has, but it did not seem to hurt him much. His blood pressure is 125 systolic and 80 diastolic. He is well nourished and has not been nervous. He weighs 190 pounds (86 Kg.). The Wassermann reaction is negative and the urine is normal. I have been thinking every day that he would be well and begin talking, but there has not been any improvement so far in his speech. The treatment has consisted of rest and potassium iodide. I have never heard of a case like this and do not know anything else to do. Is there any place where he might go, or is there any other line of treatment that might be used? Is there any special treatment that might be good? I mean by this any operation? His people are anxious to know what may be the future outcome, and it is important from a business point of view that they know. Where can the lesion be?

M.D., Mississippi.

ANSWER.—It is not unusual to have aphasia coming on in this manner. The condition might be due to delayed hemorrhage following an injury to the head but the query mentions only that the patient had a fall, not whether his head was injured. However, with a fall on the head slow hemorrhage may set in even in the absence of any unconsciousness or other reason to suspect a serious injury. Of course, if a roentgenogram had been taken soon after the injury it might have shown an unsuspected fracture and might do so even at this time. The presence of blood in the spinal fluid soon after the injury would have been proof of intracranial hemorrhage. Another possibility is some cardiac or vascular disease that might have caused thrombosis or embolism. Syphilis cannot be excluded unless the spinal fluid also is tested. Finally, such an attack may be due to hemorrhage into a tumor which has not as yet caused any of the usual symptoms of tumors. The lesion most likely is in front of the lower part of the fissure of Rolando on the left side. It would be well to have the patient examined by a neurologist or a neurologic surgeon.

POSSIBLE MISSED ABORTION—PSEUDOCYESIS

To the Editor:—I would greatly appreciate any form of information relating to the diagnosis and treatment in the following two cases: 1. After an incomplete abortion, curettage was done six months ago; today the patient shows no signs of pregnancy but vomiting; the uterus remains normal, of nonpregnant size; the menstrual periods have never returned. 2. A patient, apparently pregnant as indicated by the increasing size of the uterus and by vomiting, goes to the ninth month when roentgenograms show no fetal parts. She was not pregnant and the distention is receding. What might the cause be and the treatment? The patient shows no signs of a growth of any nature. Her abdomen is gradually flattening out and becoming much smaller.

SAMUEL S. SCHEPT, M.D., Union City, N. J.

ANSWER.—1. From the incomplete information given, three explanations may be offered. First, the curettement may have been so strenuous that all of the endometrium including the basal layer was removed. This is a rare occurrence. Second, in spite of the curettement that was performed, the ovum was not removed and a condition exists known as missed abortion. It has not infrequently happened that, in spite of one and even repeated curettements, pregnancies with living fetuses have progressed. A third possible explanation is that hyperinvolution took place, but in most of these instances the uterus is smaller than normal. A curettement with a careful examination of the obtained tissue may lead to the correct diagnosis. The vomiting may be associated with the uterine condition but it may also be due to some nonpelvic condition. Hence a careful examination should be made to try to determine this.

2. This is a typical case of what is known as pseudocyesis, or false pregnancy. The women who have this condition are usually of two types. The first includes those who have a decided fear they may be pregnant and the second class comprises those women who are extremely anxious to become pregnant. The second group is by far the more common one. The women in the first group are younger and many of them have had illicit intercourse, whereas the women in the second group are much older and more difficult to convince that they are not pregnant. These women have the usual symptoms of pregnancy; namely, nausea and vomiting, enlargement of the abdomen and breasts, absence of the menses, a sensation of feeling fetal movements and increase in weight. Many of these women continue until nine months have elapsed and then they have false labor. Because of the emotional reaction in these women, it is difficult to convince them that they are not going to have a baby until nine or ten months elapse and no baby is forthcoming. There is no treatment for the condition other than assuring the patient that she is not pregnant.

SEX GRATIFICATION AFTER RESECTION OF VAS

To the Editor:—With reference to partial resection of the vas deferens for sterilization of the male, does any lessening of libido result? Is there complete gratification from the sexual act? Is ejaculation interfered with? Please omit name.

M.D., Wyoming.

ANSWER.—Partial resection of the vas deferens does not necessarily interfere with the libido. Orgasm and subsequent gratification depend on the resistance of the prostate to the expression of secretion. Whatever of secretion of the genital appendages may be produced will furnish the sensation of proper sexual action if the prostate is in normal condition.

"ATLAS" TEAR GAS

To the Editor:—I have a patient supposedly with paralysis of the optic nerve as a result of inhaling tear gas bought from the Atlas Tear Gas Company of Chicago. Will you kindly furnish me any information you have relative to this company? Also, if possible, the chemical content of this gas. As yet our chemical laboratory has been unable to find any substance of any serious toxicity.

D. D. S., Lincoln, Neb.

ANSWER.—A communication from the Atlas Tear Gas Company states that the preparation contains "chloracetophenone, more or less pulverized, mixed with a very little black powder."

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Philadelphia, June 8, 1931. Denver, July 23, 1931. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago, Ill.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Philadelphia, June 6, 1931. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh, Pa.

ARKANSAS: Little Rock, May 4, 1931. Basic Science. Sec., Mr. Louis Gebauer, 1002 Donaghey Bldg., Little Rock, Ark. Homeopathic. Little Rock, May 12, 1931. Sec., Dr. Allison A. Pringle, Eureka Springs, Ark. Regular. Little Rock, May 12-13, 1931. Sec., Dr. S. J. Allbright, Searcy, Ark. Eclectic. Little Rock, May 12, 1931. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark.

MINNESOTA: Minneapolis, Regular, April 21-23, 1931. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul, Minn.

NEVADA: Carson City, May 4-6, 1931. Sec., Dr. Edward E. Hamer, Carson City, Nev.

NEW MEXICO: Santa Fe, April 13-14, 1931. Sec., Dr. W. T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

WISCONSIN: Milwaukee, April 14, 1931. Reciprocity Applications. Sec., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

New York September Examination

Mr. H. J. Hamilton, chief of professional examinations in the state of New York, reports the written examination held at Albany, Buffalo, New York and Syracuse, Sept. 15-18, 1930. The examination covered 9 subjects and included 10 questions. An average of 75 per cent was required to pass. One hundred and sixty-four candidates were examined, 126 of whom passed and 38 failed. The following colleges were represented:

PASSED College	Year Grad.	Number Passed
College of Medical Evangelists	(1930)	1
University of Colorado School of Medicine	(1927)	1
Yale University School of Medicine	(1927, 1), (1930, 1)	2
Georgetown University School of Medicine	(1929, 1), (1930, 5)	6
George Washington University Medical School	(1930, 4)	4
University of Georgia Medical Department	(1926)	1
Loyola University School of Medicine	(1929, 2), (1930)	3
Northwestern University Medical School	(1930, 2)	2
Rush Medical School	(1930)	1
State University of Iowa College of Medicine	(1930)	1
Tulane University of Louisiana School of Medicine	(1922), (1927), (1928), (1929)	4
Johns Hopkins University School of Medicine	(1928)	1
University of Maryland School of Medicine	(1930, 5)	5
Harvard University School of Medicine	(1928)	1
Tufts College Medical School	(1928, 2), (1929, 2), (1930, 2)	6
University of Michigan Medical School	(1925), (1929)	2
St. Louis University School of Medicine	(1930, 4)	4
Washington University School of Medicine	(1927)	1
Creighton University School of Medicine	(1929)	1
University of Nebraska College of Medicine	(1929)	1
Albany Medical College	(1930, 3)	3
Columbia University College of Physicians and Surgeons	(1928), (1929), (1930, 6)	8
Cornell University Medical College	(1928, 2), (1930, 5)	7
Long Island College Hospital	(1929), (1930, 19)	20
New York Homeo. Med. Coll. and Flower Hosp.	(1930, 2)	2
University and Bellevue Hospital Medical College	(1930, 4)	4
University of Buffalo School of Medicine	(1929), (1930, 2)	3
University of Cincinnati College of Medicine	(1930)	1
University of Oregon Medical School	(1928)	1
Hahnemann Med. College of Pennsylvania	(1929), (1930, 2)	3
University of Pennsylvania School of Medicine	(1928)	1
Woman's Medical College of Pennsylvania	(1929)	1
University of Texas School of Medicine	(1927)	1
University of Vermont College of Medicine	(1929)	1
University of Vienna Faculty of Medicine	(1927), (1930*)	2
Dalhousie University Faculty of Medicine	(1925), (1927, 2)	3
Laval University Faculty of Medicine	(1930)	1
McGill University Faculty of Medicine	(1926), (1929, 2)	3
Queen's University Faculty of Medicine	(1929, 2), (1930, 2)	4
University of Toronto Faculty of Medicine	(1927), (1929, 2)	3
Univ. of Western Ontario Faculty of Med.	(1925), (1930)	2
University of Berlin Faculty of Medicine	(1927)	1
University of Edinburgh Faculty of Medicine	(1926), (1930*)	2
Osteopath		1

FAILED College	Year Grad.	Number Failed
Yale University School of Medicine	(1928)	1
Georgetown University School of Medicine	(1929), (1930)	2
Howard University School of Medicine	(1929, 2)	2
Loyola University School of Medicine	(1930, 2)	2
University of Louisville School of Medicine	(1930)	1
Boston University School of Medicine	(1928), (1930)	2
Tufts College Medical School	(1920), (1927)	2
St. Louis University School of Medicine	(1930)	1
Long Island College Hospital	(1930)	1
University and Bellevue Hospital Medical College	(1930)	1
University of Buffalo School of Medicine	(1930)	1
Temple University School of Medicine	(1929)	1
University of Vermont College of Medicine	(1926)	1
Karl Franzens University Faculty of Med., Austria	(1928)	1
University of Vienna Faculty of Medicine	(1921)	1
McGill University Faculty of Medicine	(1927), (1928	2
Queen's University Faculty of Medicine	(1928)	1
University of Berlin Faculty of Medicine	(1922*), (1923), (1927*), (1928*)	4
University of Naples Faculty of Medicine	(1923), (1927), (1928), (1929*)	4
University of Kharkov Faculty of Medicine	(1922*)	1
Moscow State University Faculty of Medicine	(1920*)	1
Osteopaths		5

* Verification of graduation in process.

Canal Zone Licensure Report

Dr. J. F. Siler, chief health officer of the Canal Zone, reports that four physicians were licensed during the year 1930. No examination is required for licensure in the Canal Zone. Any applicant of a recognized medical school, presenting satisfactory credentials as to character, is licensed on the payment of the required license fee. The 4 accepted candidates represented the following colleges:

PASSED College	Year Grad.	Number Licensed
Georgetown University School of Medicine	(1923)	1
University of Minnesota Medical School	(1928)	1
Meharry Medical College	(1929)	1
University of Toronto Faculty of Medicine	(1927)	1

Book Notices

CLINICAL FEATURES OF HEART DISEASE: AN INTERPRETATION OF THE MECHANICS OF DIAGNOSIS FOR PRACTITIONERS. By Leroy Crummer, M.D. Introduction by Emanuel Libman, M.D., Professor of Clinical Medicine, Columbia University. Second edition. Cloth. Price, $4. Pp. 415. New York: Paul B. Hoeber, Inc., 1930.

Textbooks on diseases of the heart are becoming so numerous that they are tending to be merely a compilation of data gathered from a number of sources and put together in a sort of standard fashion. Dr. Crummer's book is a pleasing departure from this. The first part of the book has to do with the case history. This important point is treated in great detail. Then follows an excellent treatise on the physical observations. The various disease entities are then taken up together with the disorders of rhythm. A considerable portion of the remainder of the book deals with treatment and there are chapters on the so-called cardiac neuroses and cardiac emergencies. The book is written in such a manner that it is a pleasure to read it. A most pleasing feature is the quotation from older and current writers that precedes each chapter. It is regrettable that the subject matter contained in the book is not brought to such a high state of perfection as the English in which it is set down. The description of the endocardial changes in rheumatic carditis will not go unchallenged. Likewise, the author seems to misinterpret the mode of action of digitalis in auricular fibrillation. The statement that "acute rheumatic fever is a comparatively rare disease in the Middle West" will not stand critical examination. Angina pectoris is doubtless a serious disorder, but recovery from the first attack is not uncommon nor does recovery from the second attack constitute a valid reason for questioning the diagnosis. Such inaccuracies, and there are many others, seriously impair the value of the book for the student and practitioner.

UNTERSUCHUNGSMETHODEN ZUR KLINISCHEN DIAGNOSTIK FÜR DEN PRAKTISCHEN ARZT UND APOTHEKER. Bearbeitet von Dr. Richard Weiss. Fourth edition. Cloth. Price, 10 marks. Pp. 270, with 51 illustrations. Leipzig: Fischers medicinische Buchhandlung, H. Kornfeld, 1931.

That this book finds a field of usefulness is made evident by the fact that this is its fourth edition. It represents a compend of the simpler physical and chemical methods that are of use in clinical diagnosis. It is interesting to note that the microchemical methods which have come into common use in America are evidently finding wider acceptance in German clinical laboratory practice, for approximately one sixth of the book is so devoted and the methods selected are those which are recognized as most useful here. There are in addition chapters on the urine, stomach, cerebrospinal fluid and milk, on bacteriology, and on functional tests. While it offers nothing of unusual interest to the American practitioner, it will be useful to German reading physicians and pharmacists. Its purpose, indeed, as stated in the preface, is to fill the need of

physicians living away from the greater medical centers, and the laboratory equipment required in the tests has been simplified. This has been done to make all suggested procedures available to as large a group of practitioners as possible.

WILLIAM HENRY WELCH AT EIGHTY: A MEMORIAL RECORD OF CELEBRATIONS AROUND THE WORLD IN HIS HONOR. Edited by Victor O. Freeburg. Cloth. Pp. 230, with illustrations. New York: Milbank Memorial Fund, 1930.

The eightieth birthday of Dr. William Henry Welch was the occasion for celebrations in scientific circles throughout the world. At the same time hundreds of his friends, including the President of the United States, assembled in Washington at Memorial Continental Hall to greet him. This book contains the addresses that were delivered at the Washington assembly and the greetings from societies and individual friends that were received by Dr. Welch. In the first chapter is a brief account of the celebrations that were held in many cities of the United States and in universities in this country and abroad. Among the speakers at Washington were President Hoover and Livingston Farrand, president of Cornell University, the chairman. Simon Flexner, director of the Rockefeller Institute of Medical Research of New York, and a former student of the guest of honor, after expressing an appreciation of the career and personality of Dr. Welch, presented to him in behalf of the committee the first impression of the Hutty etching; he then presented formally by radio to institutions in all parts of the world the etchings, which had been sent to them in advance. Dr. Welch responded with an expression of gratitude in which he acknowledged the assistance of many friends in his great career. A more intimate account of his first laboratory at Bellevue Hospital Medical College in New York and of his acquaintanceship with men of renown appears farther along in a speech before the New York Academy of Medicine. He refers in a charming manner to the days when Osler was his neighbor in Baltimore, and to his acquaintance with Pasteur, Ehrlich, Koch, Cohnheim and other great pioneers. The 500 copies of this edition were edited by Victor O. Freeburg and published for the committee by the Milbank Memorial Fund.

ERGEBNISSE DER GESAMTEN TUBERKULOSEFORSCHUNG. Band II. Herausgegeben von H. Assmann, H. Beitzke, H. Braeuning und Stefan Engel. Paper. Price, 43 marks. Pp. 490, with 106 illustrations. Leipzig: Georg Thieme, 1931.

This volume forms part of a series of assembled timely, although unrelated, monographs on tuberculosis. The opening article is a critical review by Blumenberg of the extensive literature on the filtrability of the tubercle bacillus, in which the conclusion is reached that the case for the subvisible form has not been proved, while pleomorphism seems probable. The second two monographs, by Loeschke and Dehoff, deal with the apical localization of tuberculosis. Loeschke follows Orsós in correlating this selective involvement with an excessive motion of this part of the lung in respiration, rather than an inhibited movement, as commonly believed; and Dehoff in tracing the development of apical tuberculosis warns against uncritical acceptance of the benignity of apical tuberculosis and malignancy of the "frühinfiltrat." Other articles deal with extradomicile tuberculous infection, sanatoriums for tuberculosis, anatomic types of the disease, bilateral pneumothorax, and the prognosis of childhood tuberculosis. The physician who feels lost in the voluminous literature in German tuberculosis journals will find the summaries and extensive bibliographies in this series of monographs invaluable in keeping abreast of German thought on the subject.

PUBLIC HEALTH ORGANIZATION IN THE CHICAGO REGION. By Robert F. Steadman. Cloth. Price, $3. Pp. 279. Chicago: University of Chicago Press, 1930.

Progress made in public health activities can be measured, to a large extent, by personalities who have directed them. Great public health movements have usually had attached to them some distinguished person. There can be no doubt that there has been overlapping in public health work. However, there rarely has been any conflict between the various agencies of the state, county and city. The Chicago region is no exception to this. In this book there is a careful analysis of the various phases of public health work covering the fields of vital statistics, contagion, venereal disease, health of the child, food supply, water and sewage control. The author has not always been entirely fair in his statements and from certain angles apparently appears somewhat prejudiced. Credit for noteworthy work has not always been given those to whom it is due. Many of the author's suggestions for the elimination of overlapping and the production of greater coordination do not seem practical at this time.

LES ACROCYANOSES: TROUBLES VASCULAIRES CUTANÉS D'ORIGINE NERVEUSE VÉGÉTATIVE OU CENTRALE. Par Fernand Layani. Préface du Dr. Étienne May. Paper. Price, 32 francs. Pp. 282. Paris: Masson & Cie, 1929.

This is a review of the available literature and a contribution to a subject encountered commonly enough but concerning which only too much is obscure. The author covers completely a clinical study of this symptom complex. He discusses its relationship to disturbances of the autonomic nervous system, endocrine disorders with which he thinks it commonly associated, and other functional diseases especially those of vasomotor type, and he cites many examples of its occurrence with organic disease. Atypical forms are well illustrated with case reports. He has little to add to previous knowledge of the etiology but has some engaging ideas in his consideration of the functional pathology of acrocyanosis. Any one who wishes to acquire a working knowledge of the condition will find this paper an excellent single source. The bibliography is extensive, including more than 300 references to European and American publications. The student of vascular diseases will find much to interest him in the experimental work discussed.

CANCER: ITS ORIGIN, ITS DEVELOPMENT AND ITS SELF-PERPETUATION: THE THERAPY OF OPERABLE AND INOPERABLE CANCER IN THE LIGHT OF A SYSTEMIC CONCEPTION OF MALIGNANCY. A RESEARCH. By Willy Meyer, M.D., Consulting Surgeon to the Lenox Hill and Postgraduate Hospitals. Cloth. Price, $7.50. Pp. 427, with illustrations. New York: Paul B. Hoeber, Inc., 1931.

This book, which is based on literary research and on philosophic reflection, is divided into two parts, the first dealing with the origin, development and self-perpetuation of cancer, the second with the treatment of cancer in the light of a systematic conception of malignancy. The first part has twenty-nine chapters, all of which have been published before in various periodicals under the heading "Some Notes on Cancer." All these articles have been revised and expanded. The second part is wholly new and deals mainly with the remedial effects in cancer of fever and of acidosis. There are portraits of ten scientists, all dead, whose work has influenced research in cancer. The word "cancer" is used to include every kind and type of malignant new growth. The author's thesis is that "cancer appears as a systemic disease, more particularly as the joint effect of two simultaneously active chronic irritations, the one of systemic, the other of local character." Much discussion is devoted to what is meant by systemic irritation with the conclusion that it is a vicious circle, inherited or acquired, of nervous-endocrine-seral character in which alkalosis of the body fluids is of great importance. These chronic irritations eventuate in malignancy, that is, incessant cell multiplication. The treatment of cancer should "consist in the destruction of the chronic irritations"; namely, "radical surgical intervention with medication as the adjuvant; or by medication with nonradical surgery as the adjuvant. The selection of one or the other course is to be determined by the condition in which the individual case comes under medical care." The medical treatment should have as its object the changing of the alkalosis to acidosis, but how this is to be accomplished is not described. The discussion in the last chapter, under the heading of retrospect and outlook, on organization in the interest of the prevention and control of cancer, is helpful and stimulating. This book is the outcome of the earnest effort of a scholarly surgeon, who has searched the literature and thought deeply, to aid in attacking the cancer problem. The research of the future may establish that he was on the right track in saying: "The drawback of the surgical procedure alone, as now mostly practiced, according to our investigations would seem to lie in the purely symptomatic treatment of the *tumor cancer* and the neglect of treating at the same time the systemic disturbance of the *disease cancer*."

HANDBUCH DER EXPERIMENTELLEN THERAPIE, SERUM- UND CHEMOTHERAPIE: Ein Handbuch für die ärztliche Praxis und Klinik. Von A. Wolff-Eisner. Ergänzungsband: Zusammenfassung der neuesten Forschungsergebnisse. Cloth. Price, 18 marks. Pp. 236, with 48 illustrations. Munich: J. F. Lehmanns, 1931.

This is a composite book containing fifteen articles by almost that many authors. It is divided into two parts, general and special. The general part consists of articles on the titration of serums and poisons with reference to the new international standards, on the vitamins and their significance in disease, and on blood grouping as it bears on transfusion. The special part deals with diphtheria, its specific treatment and prevention by active immunization; pneumococcus serum therapy; antistreptococcus serum; treatment of tuberculosis and immunization against tuberculosis; scarlet fever serum; the insulin treatment of diabetes; the experimental basis of the therapeutic use of hormones in gynecology; the experimental treatment of blood diseases; the use of liver and extracts of stomach in pernicious anemia, and of spleen in polycythemia; inoculation malaria in dementia paralytica; the nonsurgical treatment of cancer, and the use of local immune processes in surgery, especially in fistula of bone and in plastic operations in infected areas. Distinguished German scientists are among the authors of these articles, which appear to be thorough, reliable and up to date. Of course the standard of scholarship varies. The opportunity to emphasize the great practical value of detecting susceptibles and immunizing them against scarlet fever has been missed and yet that is the most important practical result of the recent work on the causation of scarlet fever. The book will be of value to the physician who is seeking better information about the progress of treatment along experimental lines than is contained in the circulars of manufacturers.

LAW AND THE MODERN MIND. By Jerome Frank. With an introduction by Judge Julian W. Mack. Cloth. Price, $4. Pp. 362. New York: Brentano's 1930.

This volume is an attempt to apply to the problems of the law some of the modern discoveries of scientific psychology. After all, the law is administered by human beings. Those human beings are subject to the same psychologic motivations that affect other human beings. The judge, the jurymen, the lawyer and all of those concerned with the processes of the evaluation of crime and punishment must be controlled by their previous experiences or, to use the vernacular of Sigmund Freud, "the subconscious mind." Mr. Frank reveals his opinion in an extremely interesting manner and cites numerous cases to prove his point of view. The obvious method for overcoming such a situation would be to choose for judges men with scientific minds. True, the lawmakers have endeavored to discount the personality by a vast amount of vocabulary and verbosity as the basis of legislation and judicial decision; but this, unfortunately, serves to confuse rather than to simplify issues. Mr. Frank makes light of judges' instructions to juries and associates therewith the incompetence of the average juryman, first, to understand instructions, and, secondly, to disabuse his mind of his own emotions in the application of the instructions. Special chapters are devoted to some of the great jurists and lawyers, to the deluding of the public by emotional appeal, and to other basic fallacies in legal procedure. The volume is one of the most stimulating to thought and at the same time one of the most interesting books on the understanding of legal processes that has been made available.

TECHNIQUES COURANTES DE CHIMIE CLINIQUE: URINE, LIQUIDE CÉPHALO-RACHIDIEN SANG, CHIMISME GASTRIQUE, BILE, FÈCES. Par W. Mestrezat, de l'Institut Pasteur. Texte revu et publié par J. Loiseleur. Paper. Price, 32 francs. Pp. 263, with 16 illustrations. Paris: Masson & Cie, 1930.

This was written by Professor Mestrezat, who died a short time before its publication. It was then revised by Professor Loiseleur, the successor of Mestrezat at the Salpêtrière clinic. The book describes the most important chemical and physicochemical methods applicable to clinical work. There is a significant statement by the author which should be taken into consideration by all clinical pathologists; namely, that methods used for clinical purposes must be just as accurate as those used for research purposes. The methods described are partly those employed by European laboratory workers and partly micromethods described by American investigators. There are a number of tables showing chemical changes of body fluids in various diseases. Over half of the book is devoted to the examination of urine and the remainder deals with cerebrospinal fluid, blood, gastric juice, bile and feces. In discussing cerebrospinal fluid the author departs from his procedure of limiting himself to chemistry and physical chemistry and discusses also the cytology and bacteriology of the fluid and gives an important table of cerebrospinal fluid changes in various diseases, the additional discussion being quite welcome. It is particularly timely, since the Mestrezat monograph on cerebrospinal fluid is out of print.

ANTE-NATAL CARE INCLUDING THE ABNORMALITIES ASSOCIATED WITH PREGNANCY AND A SECTION ON POST-NATAL CARE. By W. F. T. Haultain, O.B.E., M.C., B.A., Senior Assistant Obstetric Physician to Ante-Natal Department, Edinburgh Royal Maternity and Simpson Memorial Hospital, and E. Chalmers Fahmy, M.B., F.R.C.S.E., M.R.C.P.E., Assistant Obstetric Physician and Special Assistant to Ante-Natal Department, Edinburgh Royal Maternity and Simpson Memorial Hospital. With a foreword by Professor R. W. Johnstone, C.B.E., M.A., M.D., Professor of Midwifery and Diseases of Women, University of Edinburgh. Second edition. Cloth. Price, $2.25. Pp. 127. New York: William Wood & Company, 1931.

This book is ably written by two well informed authorities; but one wonders about the necessity of a book dealing exclusively with antenatal care. Every good textbook on obstetrics, certainly those written by American authors, contains a large section which is devoted to this subject. In fact, in at least two textbooks much more information is given about prenatal care than is contained in this book. However, if there is need for such a book in Great Britain, and apparently there is, this book will fulfil its purpose admirably. It contains all the information a general practitioner should know about antenatal care. The information given is practical and the treatment outlined for the different complications is sound. A special chapter is devoted to the subject of pain in pregnancy and a chapter on postnatal care is included in the book for the sake of completeness.

NORDISKA SPECIALITETSKOMMISSIONENS ÅRSBERÄTTELSE, 1929. Paper. Pp. 80. Stockholm: Victor Pettersons, 1930.

ANALYSMETODER. Samlade och utarbetade av Nordiska Specialitetskommissionen. Häfte V. Bilag till Nordiska Specialitetskommissionens årsberättelse, 1929. Paper. Pp. 74. Stockholm: Victor Pettersons, 1930.

This is the report, apparently the first, of a commission on which Denmark, Finland, Norway and Sweden are represented, to supervise and control the composition of the innumerable new medicinal preparations that are flooding the markets everywhere. The function of this commission consequently corresponds in large degree with that of the Council on Chemistry and Pharmacy, but its work is carried on in central laboratories as well as by apothecaries in apothecary shops under more or less close government supervision. "Analysmetoder" is a supplement to the report and contains the methods of analysis that have been worked out during the year covered by the report.

GROWTH AND DEVELOPMENT WITH SPECIAL REFERENCE TO DOMESTIC ANIMALS. XV: ENERGY AND NITROGEN METABOLISM DURING THE FIRST YEAR OF POSTNATAL LIFE. University of Missouri, College of Agriculture, Agricultural Experiment Station, Research Bulletin 143. Paper. Pp. 208 with illustrations. Columbia, 1930.

This volume is one of a series of reports on investigations carried out by the Missouri Agricultural Experiment Station. Numerical data are presented on the energy metabolism of farm animals (dairy cattle, beef cattle, horses, sheep and swine) during the first year of postnatal life. Some data are also presented for chickens and rats. The bulk of the data was obtained on normally fed animals about twelve hours after feeding; but some of the measurements were made on low-fed, high-fed and fasting animals. Some data, in graphic form only, are presented for the elimination of urinary nitrogen in its several forms (total, urea plus ammonia, creatine and creatinine) in dairy calves. The age changes in consumption of feed (hay, grain, milk, dry matter, crude protein, net energy) are given for the dairy calves, as also their age changes in linear size. Similar data are presented for the colts. Tentative interpretations of the results are formulated in the text.

ANATOMIE UND PATHOLOGIE DER SPONTANERKRANKUNGEN DER KLEINEN LABORATORIUMSTIERE: Kaninchen, Meerschweinchen, Ratte, Maus. Herausgegeben von Rudolf Jaffé. Paper. Price, 98 marks. Pp. 832, with 270 illustrations. Berlin: Julius Springer, 1931.

In this book, twenty-eight contributors summarize the present knowledge of the natural or spontaneous diseases of the rabbit, guinea-pig, mouse and rat. These are the small animals that are used constantly in experimental and other work in the laboratory. Frequently the question arises whether certain conditions found in these animals are the result of spontaneous disease or are caused by the procedures to which the animals were subjected in the laboratory. This book will be of great help in determining this question and it will promote general interest in the diseases and abnormal conditions of these animals. The book has two parts, general and special. The general part covers the infectious and parasitic diseases, tumors, and carbohydrate metabolism. The bacterial and parasitic diseases and the spontaneous tumors receive thorough consideration. The special part, which includes about two thirds of the volume, discusses the morbid changes of the organs and constitutes a pathologic anatomy of the animals concerned. The illustrations are good. The book will be useful in all laboratories where the rabbit, guinea-pig, mouse and rat are used for scientific purposes.

DIET AND EFFICIENCY: A FIVE-YEAR CONTROLLED EXPERIMENT ON MEN. By Harold H. G. Holck. Paper. Price, $1. Pp. 72, with illustrations. Chicago: University of Chicago Press, 1929.

This volume is a survey of a five year experiment of diet and efficiency carried on at the University of Chicago. It provides a controlled experiment on fletcherization, indicating that overchewing decreased muscular endurance, typewriting accuracy and basal metabolism; that it had no significant effect on blood pressure, pulse, oral temperature, sleeping time, mental multiplication and typewriting speed. The book provides complete data concerning such factors as were investigated in the course of this study.

DIE PHYSIOLOGIE UND PATHOLOGIE DER BLUTGERINNUNG. Von Prof. Dr. Bernhard Stuber, Direktor der Städtischen Krankenanstalt in Kiel, und Dr. phil. et med. Konrad Lang, Leiter des Laboratoriums der Städtischen Krankenanstalt in Kiel. Paper. Price, 10 marks. Pp. 91, with 4 illustrations. Berlin: Urban & Schwarzenberg, 1930.

The authors present a crystallized concept of the mechanism of blood coagulation as a basis for further investigative work. They do not intend this discussion as a finished review but present it merely as a summary for those interested in the scientific aspect of the subject. The authors have had a wide experience with the clinical and experimental phases of blood coagulation but present the subject in a most unbiased manner. Speculation has been avoided and no conclusions are drawn along one line of investigation. The work is divided as follows: 1. Short historical survey of all the theories on blood coagulation. 2. Physiologic consideration of the elements entering into the mechanism of blood coagulation. 3. Discussion of some of the clinical conditions characterized by an alteration in the coagulability of the blood. 4. Summary. The work will be of interest chiefly to those interested in the mechanism of blood coagulation from the standpoint of investigation or those who wish to keep pace with the progress of the subject to the present time.

NUTRITION AND FOOD CHEMISTRY. By Barnard S. Bronson. Cloth. Price, $3.75. Pp. 467, with 34 illustrations. New York: John Wiley & Sons, Inc., 1930.

Much more is being written at this time and more interest is being taken in material concerning foods and their use by the human body than in almost any other aspect of human physiology. This book is designed to aid the teacher in interpreting the newer knowledge of nutrition to his pupils. The volume is based on established work and numerous competent investigations. It includes chapters on the physiology of digestion, on the requirements of the body of the various food elements and energy, special sections on vitamins, milk and milk products, and various other types of foods. An appendix provides milk standards and sections on distribution of vitamins, iron and other fundamental food substances. The book has an excellent index and will be found to be a good reference work in its field.

Medicolegal

Recuperation as a Part of Illness

(Robinson v. Commonwealth Casualty Company (Mo.), 27 S. W. (2d) 49)

The insured held an accident and health policy covering "the effects of sickness." It provided certain benefits in event she should be wholly prevented from transacting any business solely by lobar pneumonia or certain other diseases, "not including their complications and consequences." She was sick with influenza from about January 15 to February 1. She then developed lobar pneumonia and was sick until March 25. Her physician testified that the active period of her pneumonia infection was twelve days. Seizing on this testimony, the insurer claimed that her recuperation was only "a consequence" of her pneumonia and resisted the payment of benefits except for the so-called active period of infection. The insured thereupon sued and obtained judgment. The insurer appealed to the Kansas City Court of Appeals.

Whatever the medical understanding may be relative to the duration of a specific illness, said the Court of Appeals, the layman understands that an illness lasts from the time of its onset until the patient recovers, which includes the period of recuperation. The period of recuperation is not a result of the illness but a part of it. An ordinary layman would make no distinction between the period of infection in an illness and the period of recuperation after the infection had ceased. Such a distinction, if there be any, is purely medical. If there is one understanding from the medical standpoint to be gleaned from the policy and another from the layman's standpoint, the latter will control, provided the layman's understanding of the meaning is the more favorable to the insured, unless it clearly appears from the policy that the language used therein is used in a medical sense. *Berlau* v. *Met. Life Ins. Co.*, 24 S. W. (2d) 686.

The judgment of the court below in favor of the insured was affirmed.

Compensation for Cancer Following Trauma

(Hertz v. Watab Paper Co. (Minn.), 230 N. W. 481)

Hertz, a strong, healthy man, fell in the course of his employment. The fall did not immediately disable him; he continued to work for some two months thereafter. All the time, however, he was using home remedies. Eventually he consulted a local practitioner, who said he had a hernia. Later, however, the trouble was found to be a cancer. Hertz's application for compensation under the workmen's compensation act was rejected by the industrial commission, because it could find no causal relation between the fall and the cancer. He thereupon appealed to the Supreme Court of Minnesota.

This court, said the Supreme Court of Minnesota, sustained awards of the industrial commission for compensation for cancer of traumatic origin in *Austin* v. *Red Wing Sewer Pipe Co.*, 163 Minn. 397, 204 N. W. 323, and *Gaetz* v. *City of Melrose*, 155 Minn. 330, 193 N. W. 691. In *Storing* v. *Hotel Radisson Co.*, 177 Minn. 519, 225 N. W. 652, however, it sustained a finding of the commission against the existence of a cancer as the result of an accident. In *Hogan* v. *Twin City Amusement Trust Estate*, 155 Minn. 199, 193 N. W. 122, the industrial commission denied compensation for a fibroid tumor, which the claimant alleged had been aggravated by an accident, but the Supreme Court held the evidence sufficient to prove cause and effect and remanded the case because of the wrong view taken by the commission of the nature of the proof required.

In the present instance, four medical experts testified before the commission. Three, called by Hertz, were not always certain or in agreement on particular points, but the sum of their testimony was definitely that the fall caused the cancer. One physician called by the employer would not concede that the fall had anything to do with the starting of the cancer and suggested that Hertz had "a malignancy" before the accident. Even though this may have been the case, said the court, the aggravation of an existing infirmity, or an exciting cause, may be sufficient to sustain an award. In Minnesota, the Supreme Court

accepts the findings of fact by the commission when there is any evidence to support them, and there was such evidence in the present case. Weighing the evidence, however, the Supreme Court would have come to a conclusion different from that arrived at by the commission, not because there were three witnesses for the employee against one for the employer, nor because one or more physicians who apparently had made an extended examination for the insurance company were not called as witnesses, but because the evidence pointed very forcefully to the fall as the cause of the cancer. If we were finding the fact, said the Supreme Court, we would find cause and effect; the medical testimony is strong to that effect.

Without holding that the finding of the commission was without support, the court concluded that there should be a further investigation of the facts, in the hope of reaching a more certain conclusion. It therefore remanded the cause to the commission, to take such further evidence as might be offered and to make such order as it might see fit.

Trauma, Latent Syphilis and Aural Disease

(Brooks v. Lewis-Chambers Const. Co. (La.), 128 So. 321)

Brooks, a Negro laborer, was suffering from syphilis. His hearing was apparently normal. There was no evidence of any disturbance of equilibrium. In the course of his employment, Brooks received a severe blow on the abdomen. Subsequently he became deaf and could not maintain his balance, either standing or walking. He brought suit under the compensation laws, alleging that the blow on his abdomen caused his disability. Judgment was rendered in his favor, and his employer appealed to the Court of Appeal of Louisiana.

Even without the assistance of medical experts, said the Court of Appeal, we would feel reasonably certain that ordinarily a blow on the abdominal region could not of itself cause permanent deafness. The injured workman, however, claims, not that the blow itself directly caused the unfortunate result attributed to it, but that it set in motion or lighted up syphilis that was already in his system and that deafness resulted from the activation of his syphilitic condition. Such questions, said the Court of Appeal, as whether or not trauma, by setting into action lurking disease, may cause serious results which, except for the disease, would not have occurred, are within the province of physicians rather than of judges, and in determining them courts are guided by the advice of those experts. *Landry* v. *Phoenix Utility Co.* 124 So. 623; *Joseph* v. *Higgins Lumber Co.*, 126 So. 255. In the instant case, said the court, the expert testimony leaves no doubt that although it is rather rare for trauma, acting through a syphilitic condition, to cause deafness, nevertheless it is entirely possible for it to do so; and since it may do so, and since no other cause for the sudden change in the plaintiff's condition was assigned in the record, the court must assume that it did do so, since the injured workman, prior to the accident, had none of the disability of which he now complains. In reaching this conclusion the court was evidently impressed by the following testimony of a physician:

> Luetic neuritis is nothing more than inflammation of the nerve of hearing, brought about by the poisons of syphilis; and in this man's case the injury is what activated the syphilis. Something had to activate it. It was there dormant. We know that syphilitic germs can live in different organs of the body for years and years in a symbiotic stage. . . . They live in harmony with one another until something breaks up this harmony and then the parasite overcomes its host, which happened in this case, no doubt about it.

Under the compensation laws of this state, continued the court, there is no longer any doubt that liability exists under such circumstances as exist in this case. In *Behan* v. *John B. Honor Co. Ltd.*, 143 La. 348, 78 So. 589, L. R. A. 1918F, 862, in a syllabus written by the court, the principle was stated as follows:

> The fact that an employee, injured in performing services arising out of and incidental to his employment in the course of his employer's occupation, was already afflicted with a dormant disease that might some day have produced physical disability is no reason why the employee should not be allowed compensation, under the employers' liability statute, for the injury which added to the disease, superinduced physical disability.

The judgment of the lower court awarding compensation was affirmed.

Society Proceedings

COMING MEETINGS

American Medical Association, Philadelphia, June 8-12. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

Alabama, Medical Association of the State of, Birmingham, April 21-24. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for the Study of the Feeble-Minded, New York, May 25-28. Dr. Howard W. Potter, 722 West 168th Street, New York, Secretary.

American Bronchoscopic Society, St. Louis, June 6. Dr. Louis H. Clerf, 128 South 10th Street, Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, May 4-5. Dr. Charles G. Lucas, 307 West Broadway, Louisville, Secretary.

American Gynecological Society, Hot Springs, Va., May 18-20. Dr. Floyd E. Keene, 133 South 36th Street, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, St. Louis, June 3-5. Dr. R. L. Loughran, 33 East 63d Street, New York, Sec'y.

American Neurological Association, Boston, May 27-29. Dr. Henry A. Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Asheville, N. C., June 1-3. Dr. Emory Hill, 501 East Franklin Street, Richmond, Va., Secretary.

American Orthopedic Association, Memphis, Tennessee, April 15-18. Dr. DeForest P. Willard, 1916 Spruce Street, Philadelphia, Secretary.

American Pediatric Society, Edgewater Park, Mississippi, April 15-17. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Psychiatric Association, Toronto, Canada, June 1-5. Dr. Clarence O. Cheney, Hudson River State Hospital, Poughkeepsie, N. Y., Secretary.

American Society for Clinical Investigation, Atlantic City, May 4. Dr. Cyrus C. Sturgis, Simpson Memorial Institute, Ann Arbor, Mich., Sec'y.

American Therapeutic Society, Atlantic City, June 5-6. Dr. Grafton Tyler Brown, 1801 I Street, N. W., Washington, D. C., Secretary.

American Urological Association, Memphis, Tenn., May 18-22. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Arizona State Medical Association, Nogales, May 7-9. Dr. D. F. Harbridge, Goodrich Building, Phoenix, Secretary.

Arkansas Medical Society, Texarkana, April 21-24. Dr. William R. Bathurst, Boyle Building, Little Rock, Secretary.

Association of American Physicians, Atlantic City, May 5-6. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, San Francisco, April 27-30. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.

Conference of State and Provincial Health Authorities of North America, Washington, D. C., April 29-30. Dr. A. J. Chesley, State Board of Health, St. Paul, Minnesota, Secretary.

Connecticut State Medical Society, Bridgeport, May 20-21. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

District of Columbia, Medical Society of, Washington, May 6. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, Secretary.

Florida Medical Association, Orlando, May 11-12. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, May 12-15. Dr. Allen H. Bunce, 139 Forrest Avenue, N. E., Atlanta, Secretary.

Harvard Medical Alumni Association, Boston, April 17-18. Dr. James M. Faulkner, Harvard Medical School, Secretary.

Hawaii Territorial Medical Association, Wailuku, Maui, May 1-2. Dr. F. J. Pinkerton, Young Building, Honolulu, Secretary.

Illinois State Medical Society, East St. Louis, May 5-7. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 13-16. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Kansas Medical Society, Manhattan, May 5-7. Dr. J. F. Hassig, Huron Building, Kansas City, Secretary.

Louisiana State Medical Society, New Orleans, April 14-16. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 28-30. Dr. John T. King, Jr., 1211 Cathedral Street, Baltimore, Secretary.

Medical Library Association, New Orleans, May 19-21. Miss Sue Biethan, General Library, University of Michigan, Ann Arbor, Mich., Secretary.

Minnesota State Medical Association, Minneapolis, May 4-6. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Mississippi State Medical Association, Jackson, May 12-14. Dr. T. M. Dye, Clarksdale, Secretary.

Missouri State Medical Association, Joplin, May 11-14. Dr. E. J. Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.

National Tuberculosis Association, Syracuse, N. Y., May 11-14. Dr. Charles J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.

Nebraska State Medical Association, Omaha, May 12-14. Dr. R. B. Adams, Center McKinley Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 19-20. Dr. D. E. Sullivan, 7 North State Street, Concord, Secretary.

New Jersey, Medical Society of, Asbury Park, June 3-5. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

New Mexico Medical Society, Albuquerque, May 20-22. Dr. L. B. Cohenour, 219 West Central Avenue, Albuquerque, Secretary.

New York, Medical Society of the State of, Syracuse, June 1-3. Dr. Daniel S. Dougherty, 2 East 103d Street, New York, Secretary.

North Carolina, Medical Society of the State of, Durham, April 20-22. Dr. L. B. McBrayer, Southern Pines, Secretary.

North Dakota State Medical Association, Aberdeen, S. D., June 2-4. Dr. Albert W. Skelsey, 18 Broadway, Fargo, Secretary.

Ohio State Medical Association, Toledo, May 12-13. Mr. Don K. Martin, 131 East State Street, Columbus, Secretary.

Oklahoma State Medical Association, Oklahoma City, May 11-13. Dr. C. A. Thompson, Memorial Station, Muskogee, Secretary.

Rhode Island Medical Society, Providence, June 4. Dr. J. W. Leech, 369 Broad Street, Providence, Secretary.

South Carolina Medical Association, Greenville, May 5-7. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Aberdeen, June 2-4. Dr. John F. D. Cook, Langford, Secretary.

Tennessee State Medical Association, Knoxville, April 14-16. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Texas, State Medical Association of, Beaumont, May 5-7. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.

West Virginia State Medical Association, Clarksburg, May 19-21. Mr. J. W. Savage, 303 Professional Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

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Experimental Cancer Research. W. H. Woglom, New York.—p. 157.
*Diseases of Lymphoid and Myeloid Tissues: Plasmatocytomas and Relation to Multiple Myelomas. H. Jackson, Jr., F. Parker, Jr., and J. M. Bethea, Boston, Mass.—p. 169.
*Calcium and Parathyroid Therapy in Chronic Ulcerative Colitis. B. Haskell and A. Cantarow, Philadelphia.—p. 180.
Staphylococcus Septicemia. P. S. Lowenstein, St. Louis.—p. 196.
*Involvement of Coronary Arteries in Acute Rheumatic Fever. S. R. Slater, Brooklyn.—p. 203.
Low Voltage T Waves in Electrocardiogram. A. M. Master, New York. —p. 211.
Hemoglobin Content, Volume and Thickness of Red Blood Corpuscle in Pernicious Anemia and Sprue, and Changes Associated with Liver Therapy. M. M. Wintrobe, New Orleans.—p. 217.
Human Elliptical Erythrocytes. J. S. Lawrence, Rochester, N. Y.—p. 240.
*Prognostic Significance of Leukocyte Count in Pneumonia of Children. H. F. Meyer, Chicago.—p. 245.
Leukemoid Blood Picture in Pseudomucinous Cyst and Papillary Adenoma of Ovary. H. M. Winans, Dallas, Texas.—p. 251.
Pancreatitis Complicating Mumps. M. B. Brahdy and I. H. Scheffer, New York.—p. 255.
*Splenomegaly and Hepatic Enlargement in Hereditary Hemorrhagic Telangiectasia. T. Fitz-Hugh, Jr.—p. 261.

Diseases of Lymphoid and Myeloid Tissues.—Jackson et al. believe that multiple myelomas, of the plasma cell type at least, should be classed among the malignant lymphomas. The type cell belongs beyond question to the lymphoid series and the clinical picture finds analogies throughout its course in the pathologic and symptomatic picture of the lymphomas. That the disease in its classic form is largely limited to the bones does not militate against such a view when one considers the marked variation of the disease picture and the gradual manner in which the cases blend into each other.

Calcium and Parathyroid Therapy in Chronic Ulcerative Colitis.—Experimental calcium studies made by Haskell and Cantarow in a group of patients with mucous colitis and in another group with ulcerative colitis, together with certain clinical features observed, suggest that in a number of cases the ulcerative lesions are secondary to a long standing mucous colitis. The rationale of calcium and parathyroid therapy in ulcerative colitis rests on the beneficial effect of calcium on the nutritional change in the tissues, with or without a disturbance of calcium partition, spasticity of the colon and hemorrhage. Calcium lactate or gluconate by mouth and parathyroid extract intramuscularly were administered to a group of thirteen patients with ulcerative colitis. Eleven became clinically well in from four to eight weeks. Ten of these were observed over a period of from one to two and a half years. The mucosa of the lower bowel resumed a normal appearance in eight. Return of symptoms for a short period occurred in two. The clinical and anatomic improvement, which followed rather promptly the administration of calcium and parathyroid to patients with ulcerative colitis after other forms of therapy had been unsuccessful in several of them, seems to warrant the continued use of and further observation on the effects of this form of treatment.

Coronary Arteries in Acute Rheumatic Fever.—Slater describes three cases of closure of the coronary arteries in acute rheumatic fever. The point brought out particularly is the occurrence of the acute coronary closures during a very active acute rheumatic infection. The diagnosis of acute rheumatic fever seemed warranted in all these cases. The closures occurred during the active stage of the infection, for the reason that the larger branches of the coronary system were involved by the rheumatic virus. In acute rheumatic fever the vascular system is extensively involved. In all three cases there had occurred repeated epistaxis, a fact explainable on the basis that this was merely a local phenomenon of the vascular involvement, exemplifying that which took place in the heart.

Leukocyte Count in Pneumonia.—In a series of 100 cases of pneumonia in infants and children Meyer found that the mortality was inversely proportional to the leukocyte count, except that in children having more than 50,000 cells per cubic millimeter. In this series of pneumonias, regardless of type, there is a relation between the lack of response on the part of the body in the production of leukocytes and a high mortality. Evidence is presented which indicates that the total leukocyte count offers a valuable method of approximating the reaction of the host to the infection and hence may be utilized as a prognostic aid. Suppurative complications and extension of the pneumonia may be anticipated even in the presence of the primary pneumonia by the sudden increase of the leukocyte count.

Hereditary Hemorrhagic Telangiectasia. — Fitz-Hugh reports four cases of hereditary hemorrhagic telangiectasia exhibiting the following noteworthy features: splenomegaly and hepatic enlargement; increasing intolerance to blood transfusion resulting in posttransfusion jaundice (and death in two), and the coincidence of identical blood group (O) in all of those tested who presented the splenomegalic syndrome.

American Journal of Ophthalmology, Chicago

14: 95-188 (Feb.) 1931

Formation of Macular Star in Nonrenal Cases. F. P. Calhoun, Atlanta, Ga.—p. 95.
Etiology of Acute Iritis. S. R. Gifford, Chicago.—p. 100.
Syphilitic Iritis. J. E. Moore, Baltimore.—p. 110.
Tuberculosis in Etiology of Acute Iritis. W. C. Finnoff, Denver.—p. 127.
Nodular Opacity of Cornea. E. L. Goar, Houston, Texas.—p. 133.
Contributions of Professor Ernst Fuchs to Ophthalmic Pathology. J. S. Friedenwald, Baltimore.—p. 138.
Statistical Analysis of Ophthalmic Patients. H. S. Gradle, Chicago. —p. 140.
Prevention of Myopia. D. Hallett, New York.—p. 143.

American Journal of Surgery, New York

11: 1-226 (Jan.) 1931

*Management of Biliary Tract Disease. F. H. Lahey and S. M. Jordan, Boston.—p. 1.
*Oral Cholecystography in Diagnosis of Chronic Gallbladder Disease. R. C. Pendergrass, Americus, Ga.—p. 6.
*Intrinsic Carcinoma of Larynx. W. O. Johnson, Louisville, Ky.—p. 16.
*Effect of Prolonged Use of Colon Enemas on Bowel in Animals. J. Friedenwald and M. Feldman, Baltimore.—p. 23.
Gastro-Intestinal Tract in Pernicious Anemia. C. C. Sturgis and R. Isaacs, Ann Arbor, Mich.—p. 31.
*Push Fluids: Surgeon's Postoperative Order. G. de Takáts, Chicago. —p. 39.
*Electrothermic Hemorrhoidectomy. D. Warshaw, Albany, N. Y.—p. 45.
*Hallux Valgus: Cause and Treatment. J. M. Hiss, Columbus, Ohio. —p. 51.
*Mechanical Drainage in Surgical Urology. G. W. Fish, New York.—p. 58.
Congenital Hypertrophic Ureteropelvic Obstruction. R. W. McKay, Charlotte, N. C.—p. 67.
*Nonoperative Extraction of Ureteral Calculi. V. A. Nardiello, New York.—p. 72.
Progressive Postoperative Gangrene of Skin. M. Ballin and P. F. Morse, Detroit.—p. 81.
Postoperative and Inoperable Tuberculosis of Genito-Urinary Tract. S. L. Wang, New York.—p. 88.
Bronchiectasis: Diagnosis and Treatment. F. S. Mainzer, Clearfield, Pa. —p. 93.
Résumé on Prostatism. A. M. Bennardi, Cleveland.—p. 96.
Relation of Roentgen Wavelength to Biologic Effect. J. A. Saralegui and F. Vierheller, Buenos Ayres, Argentina.—p. 97.
Modified Cannula for Urethral Instillation. G. T. Spencer, Hornell.—p. 105.

Management of Biliary Tract Disease. — Lahey and Jordan state that many of the symptoms of chronic cholecystitis (distention, gaseous eructations and distress) are due apparently not to dysfunctioning of the gallbladder primarily but to an associated gastric or colonic malfunctioning. Achlorhydria and colonic irritability must often be treated in conjunction with cholecystectomy before relief of symptoms occurs. For this reason, as well as for completeness of diagnosis, the surgeon requires the aid of the gastro-enterologist in the treatment of biliary tract disease, and in all cases a thorough gastro-intestinal

study should be made even though the first film shows gallstones and the symptoms are thought to be clearly due to this cause.

Oral Cholecystography in Diagnosis of Gallbladder Disease.—Pendergrass emphasizes that cholecystography is not infallible. The roentgen changes should be carefully correlated with the history, physical observations and laboratory reports and, in borderline cases, if the clinical indications of a diseased gallbladder are stronger than the roentgen evidence, the clinical observations should form the basis of the diagnostic decision. It is also to be remembered that a recent mild attack of cholecystitis may leave the gallbladder so little impaired that concentration of dye is normal. Failure to recognize this fact may lead to error in the retrospective diagnosis of recent attacks of upper abdominal pain. If cholecystography is employed with a full recognition of its possibilities and its limitations; with proper regard for details of technic, with judgment in interpretation and with broad clinical approach to the case in question, then and only then is it a reliable aid in the diagnosis of chronic gallbladder disease.

Intrinsic Carcinoma of Larynx.—According to Johnson, early diagnosis of carcinoma of the larynx is dependent on the education of the public to the seriousness of persistent hoarseness in a person over 30 years of age and an immediate recognition of the cause of this hoarseness. Until carcinoma of the larynx is diagnosed in its incipience, laryngectomy is the operation of choice but should be attempted only by one skilled in the operation after meticulous selection, preoperative care and with untiring postoperative care and persistent after-treatment and reeducation. Laryngectomy can cure 70 per cent of intrinsic carcinoma of the larynx with only 3 per cent mortality and about 3 per cent of recurrences, returning to society self-supporting people able to carry on their usual work and enjoy a comfortable, useful life.

Effect of Colon Enemas on Bowel in Animals.—On the basis of their experiments on dogs, Friedenwald and Feldman conclude that the prolonged use of enemas seems to result in more or less bowel disturbance. The use of even simple water enemas, when applied over long periods, may produce mild inflammatory changes. Soapsuds enemas are apt to produce more marked inflammatory changes, and even hemorrhages and ulcerations have been recorded. Oil enemas appear to produce less irritation to the mucous membrane of the bowel. Acriflavine hydrochloride in 1 to 3,000 solution and camphor water cause but slight disturbance of the bowel. Irrigations with irritating chemicals such as sodium carbonate, ammonium chloride and hydrochloric acid, even in weak solutions, cause inflammatory changes ranging from mild processes to extensive ulcerations and necroses. Finally it appears obvious from these experiments that the prolonged use of rectal injections and irrigations may result in the production of a variety of colonic disorders of a more or less severe grade.

Push Fluids: Surgeon's Postoperative Order.—De Takáts asserts that, following a major surgical operation that prevents oral intake of fluids for a few days, a satisfactory water balance can be maintained with 3,000 and not more than 4,000 cc. of fluids. Most of the fluid can be given under the skin, but in the presence of serious complications the intravenous drip method is useful. Rectally only tap water is given and even that only if an abdominal operation has not been performed. The solution preferred is 5 per cent dextrose under the skin, 10 per cent dextrose intravenously. For the salt balance, 1,000 cc. of Ringer's solution is given subcutaneously. In certain patients physiologic solution of sodium chloride must be given in larger quantities; in others both fluids and salt must be greatly restricted. A senseless, routine, pushing of fluids may lead to water intoxication.

Electrothermic Hemorrhoidectomy.—Warshaw gives the advantages of electrodesiccation and excision of hemorrhoids by the monopolar high frequency current thus: Under suitable circumstances, it may be done in the office. There is no loss of blood. No complications such as fissures, ulcers, infections, abscesses, strictures or loss of sphincter control have occured. No recurrences have been observed after this method was used during the past four years. Convalescence is shorter and more comfortable. Total disability rarely exceeds four days.

Hallux Valgus: Cause and Treatment.—Hiss believes that hallux valgus is not an enlarged joint but is primarily tendon imbalance and joint buckling. Phylogenesis plays an important predisposing rôle; shoes are the immediate cause. Broken arches and hallux valgus are the result of the same vicious forces. Excess weight-bearing on the great toe joint can be relieved by treatment to the arches. Surgery involves restoration of tendon balances rather than destruction of weight-bearing joints. No set orthodox technic will cope with all varieties of hallux valgus.

Drainage in Urology.—Fish recommends the application of mechanical suction to wounds draining urine because it results in cleaner wounds, more comfortable patients, less nursing care and a tremendous saving of expenditure for dressings and laundry. Mechanical difficulties are practically nonexistent when water suction is used. Water suction, where it is available, is the cheapest from the standpoint of power and apparatus and is the most highly satisfactory. Suction by means of electrically driven rotary pumps is next in simplicity and results, though considerably more expensive and subject to more mechanical hazards. The various types of gravity apparatus have been found to be cumbersome and unsatisfactory. There is no delay in healing when suction is applied, often an increase because of cleaner wounds.

Nonoperative Extraction of Ureteral Calculi.—Nardiello emphasizes the wisdom of exhausting every possible means of nonoperative removal before attempting surgical intervention on a ureter blocked by a calculus. Clinical experience in many different places over a considerable number of years has shown that care and persistence will practically always be rewarded by the passage of all but the largest stones. The patient's cooperation is an important factor in the eventual success, but this is easy enough to obtain once he comprehends that an effort is being made to obviate the suffering and hazard of an abdominal operation, to say nothing of the minor, but none the less interesting, consideration that he will avoid the expenditure of time and money incident to hospitalization, for the intravesical procedures can all be carried out in the office. Another point that is an important future consideration is the avoidance of stricture of the ureter, which is so often a sequel to the formation of scar tissue in operative wounds. All these considerations may be brought to the patient's attention, should he find continuous transvesical inspection irksome, and the repeated passage of instruments tedious and painful.

American Review of Tuberculosis, Baltimore

28: 107-213 (Feb.) 1931

*Differential Diagnosis Between Pulmonary Tuberculosis and Pulmonary or Bronchial Malignant Neoplasms. C. Frothingham, Boston.—p. 107.
*Determination of Tuberculosis and Toxic Goiter. S. R. Roberts, Atlanta, Ga.—p. 120.
*Intrathoracic Pressure Studies in Two Types of Valvular Spontaneous Pneumothorax. S. J. G. Nowak and E. D. Churchill, Boston.—p. 127.
*Cystinuria and Tuberculosis. H. B. Lewis and M. F. O'Connor, Ann Arbor, Mich.—p. 134.
*Nonapical Infiltrations in Pulmonary Tuberculosis. K. Fischel, Duarte, Calif.—p. 139.
*Calcification of Tubercles by Means of Viosterol in Experimental Chronic Tuberculosis. T. D. Spies, Boston.—p. 169.
*Relation Between Allergy and Immunity in Tuberculosis. M. Pinner, —p. 175.
Results of Tuberculosis Administration in Cattaraugus County, New York. J. Downes and E. Sydenstricker.—p. 183.
Study in Blood Groups: Tuberculosis. K. T. Sasano, New York.—p. 207.

Tuberculosis and Pulmonary Malignant Neoplasms.—Frothingham emphasizes the fact that, although an accurate diagnosis is always desired, in some instances it is of considerably more practical importance than in others. This is especially true in cases in which the diagnosis may be confused between two conditions that call for quite different procedures in regard to treatment. The two conditions mentioned in the title are examples of such a problem, because in the instance of tuberculosis there is always hope of recovery, and therefore it is worth while to lay out a program for treatment which may cause a considerable change in the patient's life. On the other hand, malignant disease in the lungs is practically a fatal disease and therefore it is unwise to subject the patient and the relatives to considerable inconvience and expense in the search of a cure.

Tuberculosis and Toxic Goiter.—Roberts summarizes the diagnostic points that may be used to distinguish between chronic

pulmonary tuberculosis and toxic goiter, as follows: 1. A careful history with accent on exposure to tuberculosis as contrasted with emotional strain and family goiter. 2. A careful physical examination, contrasting the lungs of tuberculosis with the heart of goiter, and similar contrasts between the pulse of each condition, the blood pressure, the eye, the tremor, the skin and the amount of food eaten contrasted with loss of weight. 3. The process of critical contrast in the mind of the clinician. 4. The presence or absence of bacilli in the sputum. 5. The skin test, if necessary, for tuberculosis. 6. A contrast of the stereoscopic plates with the basal metabolic test. 7. A critical analysis of the results in hand and a restudy of the patient, which should eliminate the present ratio of error, which is about 0.5 per cent. 8. A critical attitude toward the blood, with particular accent on the count and interpretation of the polymorphonuclears, lymphocytes and mononuclears.

Intrathoracic Pressure Studies in Valvular Spontaneous Pneumothorax.—The physiopathology of tension pneumothorax is discussed by Nowak and Churchill and illustrated by actual pressure readings from a patient in whom this lesion occurred as a complication of pulmonary tuberculosis. The treatment by closed thoracotomy is discussed. The case of a second patient is described in which marked respiratory distress and circulatory embarrassment attended a spontaneous partial pneumothorax. The pneumothorax was "valvular," but the air was not under tension. Aspiration of the air was followed by rapid reaccumulation, and a study of the pressures showed that the insertion of a catheter alone would be inadequate. Recourse was had to thoracotomy with constant suction. The relief of dyspnea and circulatory embarrassment was immediate. Manometric readings and venous pressure determinations are cited to illustrate the essential pneumatic and hemodynamic principles under consideration.

Cystinuria and Tuberculosis.—Careful examination by Lewis and O'Connor of the urine of about 150 tuberculous patients failed to demonstrate any relationship between tuberculosis and cystinuria as maintained by Monceaux. The tests used (Sullivan, Brand, Looney, Gaskell) were shown by control experiments to be sufficiently delicate to indicate the presence of cystine in small amounts.

Nonapical Infiltrations in Pulmonary Tuberculosis.—Fischel states that pulmonary tuberculosis begins often with nonapical infiltrations, which may undergo retrogressive changes or may progress, causing extensive involvement of the lung in a short time. Apical tuberculosis is, as a rule, a benign late form; the evolution of progressive disease from apical lesions is a comparatively rare occurrence. Roentgen examination is the only method by which one can exclude pulmonary tuberculosis, which begins with nonapical infiltrates. Roentgenography of the chest should be used as a routine method. Surgical collapse should be attempted in the treatment of infiltrations that do not retrogress spontaneously. During the allergic phase general and functional rest are strongly indicated, whereas the use of any stimulating therapy, such as tuberculin exercise and heliotherapy, must be opposed. Every effort should be made to diagnose acute infiltrations and to hospitalize patients with this type of lesion immediately.

Calcification of Tubercles by Means of Viosterol.—According to Spies, the repeated administration of large doses of viosterol (activated ergosterol) to rabbits with chronic tuberculosis produces, as in acute tuberculosis, calcification within the necrotic and caseous portions of the tubercles.

Relation Between Allergy and Immunity in Tuberculosis.—Pinner believes that the attempt to correlate allergy and immunity quantitatively is doomed to failure, because the two terms are incomparable concepts. Immunity cannot be measured in terms of allergy for the identical reason. The clinician should not try to correlate a strong tuberculin reaction with high immunity, nor will he find the reverse relation to hold true. The elusive nature of immunity, whose doings are obscured by many extrinsic factors, cannot be recognized or measured until the disease has run its course. The elimination of the term immunity from clinical usage will more clearly show the pressing need to study carefully the influence which allergy has on pathologic processes. It should be possible by close clinical observation to decide definitely whether a high or low degree of allergy influences favorably resorption, fibrosis or calcification. The fact that the answers to such questions are not available today precludes the use of one possibly powerful weapon against the disease; namely, the controlled alteration of the intensity of the allergic state.

Archives of Neurology and Psychiatry, Chicago

25: 227-452 (Feb.) 1931

*Acute Diseases of Brain Due to Functional Disturbance of Circulation: Laminated Cortical Disease. E. de Vries, Amsterdam, Holland.—p. 227.
*Hemorrhage of Brain. L. Bouman, Utrecht, Holland.—p. 255.
*Cerebral Circulation: Question of "End Arteries" of Brain and Mechanism of Infarction. S. Cobb, Boston.—p. 273.
Origin and Development of Giant Cells in Gliomas. B. J. Alpers, Philadelphia.—p. 281.
*Schilder's Encephalitis Periaxialis Diffusa: Case in Child Aged Sixteen and One-Half Months. M. M. Canavan, Boston.—p. 299.
*Gangliogliomas. C. B. Courville, Los Angeles.—p. 309.
Marchi Method. D. Duncan, Buffalo.—p. 327.
Histologic Features of Cranial Nerves. H. A. Skinner, London, Canada.—p. 356.
*Spinal Arachnoid: Cells in Pathologic Conditions. I. B. Diamond, Chicago.—p. 373.

Acute Diseases of Brain.—Four cases are described, clinically and pathologically, by de Vries in which localized brain symptoms were due to elective softening of parts of the cortex and for which no organic vascular lesions could account. One case shows small foci of necrosis or necrobiosis, distributed apparently without rule over the various layers of the cortex. In the other cases the lesions take the shape known as laminated cortical softening. The latter may destroy the cortex in its entire depth or (often in other parts in the same hemisphere) may be restricted to one or two cell layers. The third cortical layer is most frequently the seat of this lesion; it was also found in the fifth and sixth layers together. No data have been gathered to account for these differences in distribution. All the cases show, at the same time, lesions other than those mentioned, of the common vascular type or thrombosis of vessels in other places, mostly in connection with widespread diffuse degeneration of ganglion cells. In case 1 a spasm of the cortical arteries, due to toxemia of pregnancy, is the probable cause. In case 4 a sudden and prolonged intense fall of the blood pressure must have resulted in cerebral anemia with localized necrosis. In both the other two cases the cause of the cerebral ischemia was not simple and could not be ascertained satisfactorily. In these patients, predisposing factors have been found but seem to be of little importance. From a study of the literature it is evident that the direct cause of spasm of the vessels in human disease is not yet known. Functional disturbances of the cerebral circulation probably play a much greater part in the pathogenesis of foci of softening in general arteriosclerosis than has hitherto been believed.

Hemorrhage of Brain.—Bouman distinguishes between the hemorrhage from a large vessel and hemorrhages from the small vessels in the adjacent area: 1. The large hemorrhage is caused by the rupture of a vessel and is dependent on an atheromatous ulcer formation of local nature which bursts with outflowing blood forcing its way into the tissue and causing mechanical injury. 2. Small vessels in the adjacent area with altered walls and also small vessels without alteration may thus be caused to rupture. 3. In addition, there is ischemia in some parts of the environment with consequent necrosis of the vessel walls and of the brain tissue; moreover, there are the chemical influences of the extravasated blood in the tissue; so vessels that are secondarily altered also rupture. The pathway of the blood could be demonstrated; it goes along the perivascular spaces of Virchow-Robin or along the perivascular glia chambers of Held. These two forms of secondary hemorrhages contribute to the quantity of extravasated blood. The study of gunshot wounds showed alterations analogous to those in apoplexia cerebri, dependent on the same principles. The tissue bordering on the gunshot wound showed necrobiotic processes of the walls of the small vessels and blood in the perivascular spaces. Thus acute lesions are shown to have vascular wall degenerations. In the cases of a circular hemorrhage and of poliencephalitis hemorrhagica superior there also was found a necrobiotic process of the small vessels, dependent on mechanical and chemical influences. In "red softening," tissue cell infiltration was found, with degeneration and alteration of the vessels; this could be demonstrated in both recent and old hemorrhages.

Besides, it was found in the red softening that the wall of the hemorrhage consisted of three distinct layers from the inside to the outside: (1) brain tissue with extravasated material, (2) new-formed vessels with glia and lymphocytic elements, and (3) gliosis. In connection with several cases of cerebral hemorrhage in young patients and the so-called hemiplegia without anatomic changes, Bouman was compelled to postulate a vasomotor disturbance rather than one of the processes described.

Cerebral Circulation.—Cobb states that if one defines "end-arteries" as those arterial branches which in no way connect, even through the capillary bed, with other arterial branches, there are probably no end-arteries in the body, certainly not in the brain. If the definition is that the branch in question must have no connection with other arterial branches (including arterioles) there probably are no end-arteries except perhaps a few in the kidney, spleen, mesentery and retina. His observations on the brain would lead him to believe that there are none there, even in the basal ganglions. If one considers any artery that does not have obvious anastomosis of branches large enough to be called truly arterial to be an "end-artery," one may find many such in the organs enumerated, and a few in the brain. Functionally speaking, however, the capillary and arteriolar anastomoses keep the arterial tree from acting as the sole blood supply of any part. The edema is probably the most effective factor in shutting off blood from anastomosing capillaries and other small vessels, for these have a low blood pressure, and the swelling quickly blocks the flow as in wheal formation in the skin. Thus, in the brain, occlusion of an artery in spite of arterial and capillary anastomosis can cause enough reduction of oxygen supply to produce necrosis. It is a matter of relative anoxemia (not of anatomically perfect anemia) in a tissue more dependent on its oxygen supply than any other tissue in the body.

Schilder's Encephalitis Periaxialis Diffusa.—Canavan reports a case of encephalitis periaxialis diffusa in a male child that was seen repeatedly from the age of 10 weeks to 16 months and that died at 16½ months of age. Only at 10 weeks and during the last two weeks of life when in the hospital did he present evidences of infection. During the last seven months of life he was known to have an enlarging head and signs of increased intracranial pressure. The brain was soft and weighed 1,890 Gm. after three days in formaldehyde. There was a subcortical loss of myelin and a diffuse and marked edema of the white matter, with no vascular inflammatory reaction. The Purkinje cells, as well as cells in the cerebral cortex, were preserved.

Gangliogliomas.—A short review of the problem of gliomas containing nerve cells is made by Courville and a case of a tumor of this type in the right temporal lobe is reported. It fulfilled the essential characteristics of the group but differed from some in its greater cellularity, the smaller amount of stroma and the presence of mitotic figures. The characteristics of gangliogliomas of the temporal lobe are presented, together with a table of the cases reported. They are similar in many respects to the "spongioblastoma unipolare" described by Bailey and Cushing, if not identical with it.

Spinal Arachnoid.—According to Diamond, changes in the arachnoid cells are of rather common occurrence in diseases of the central nervous system. They are mainly progressive, the most striking being the formation of clusters. The cell changes vary in intensity and extent according to the type of the disease. The changes in the arachnoid may depend on the physicochemical properties of the cerebrospinal fluid.

Colorado Medicine, Denver

28: 53-100 (Feb.) 1931

Treatment of Cancer of Lip. E. Fischel, St. Louis.—p. 57.
Cause of Fever in Carcinoma. W. A. Campbell, Jr., Colorado Springs.—p. 62.
Sterilizer as Factor in Control of Postoperative Infections. F. J. Gelpi, Denver.—p. 66.
Annual Registration of Physicians in Colorado. W. W. Williams, Denver, and F. R. Spencer, Boulder.—p. 68.
Skin Cancer. G. P. Lingenfelter, Denver.—p. 72.
Acute Secondary Pneumococcic Endocarditis. C. S. Gydeson, Colorado Springs.—p. 74.
Effect of General Anesthesia on Arrested Cases of Moderately Advanced Pulmonary Tuberculosis: Twenty Cases. R. L. Gleason, Fort Collins.—p. 76.

Johns Hopkins Hospital Bulletin, Baltimore

48: 69-113 (Feb.) 1931

Method for Differential Staining of Gram-Positive and Gram-Negative Bacteria in Tissue Sections. J. H. Brown and L. Brenn, Baltimore.—p. 69.
*Production of Acute Nephritis by Means of Pneumococcal Autolysate. S. S. Blackman, J. H. Brown and G. Rake, Baltimore.—p. 74.
*Experimental Syphilis: Distribution of Resistant State in "Immune Rabbits." A. M. Chesney and T. B. Turner, Baltimore.—p. 90.

Production of Acute Nephritis.—Blackman et al. produced characteristic acute and subacute nephritis in rabbits by means of an autolysate prepared from type I pneumococcus and also by means of intradermal infection with virulent strains of pneumococci. The toxin affected the glomerular capillaries, as evidenced by the hyaline and fibrin thrombi, and the blood and fibrin in the tubules, and produced injury and necrosis in the epithelium of the tubules and glomeruli. In a certain number of cases the injury of the kidneys was associated with marked edema of the tissues and with ascites.

Experimental Syphilis.—When rabbits were inoculated with syphilitic virus by Chesney and Turner in such a manner as to produce a lesion involving the skin, whether the original inoculation was made subcutaneously, intracutaneously or by depositing the virus on the surface of a granulating wound, subsequent inoculation with homologous virus after a period of four months or more was not followed by the development of lesions, no matter whether the second inoculation was made intratesticularly, subcutaneously, intracutaneously or intravenously. Intravenous reinoculation under these conditions may be followed by reinfection without lesions. When syphilis develops in rabbits after intratesticular inoculation, a second inoculation with homologous virus by the intracutaneous route after a period of four months or more is not followed by the development of any lesions at the site of inoculation. When syphilitic virus is injected intravenously into rabbits, marked and widespread lesions of the skin and bones develop. When these animals are reinoculated with homologous virus after a period of several months, whether by subcutaneous or intracutaneous injection, no lesions develop. However, intravenous injection under these circumstances may be followed by reinfection but without lesions.

Journal of Infectious Diseases, Chicago

48: 161-241 (Feb.) 1931

*Promotion of Phagocytosis by Calcium Gluconate, Sodium Iodide, Dextrose and Other Substances. R. Tunnicliff, Chicago.—p. 161.
*Cutaneous Hypersensitiveness in Guinea-Pigs Infected with Brucella Abortus. A. C. S. Stroem, Baltimore.—p. 167.
*Production of Bacteriophage by Enforced Dissociation. P. Hadley and B. Jiménez, Ann Arbor, Mich.—p. 176.
*Phenomenon of Local Skin Reactivity to Streptococcus Hemolyticus-Scarlatinae. G. Shwartzman, New York.—p. 183.
*"Zoning" Phenomenon in Complement Fixation with Cholesterolized Alcoholic Beef Heart Extract: Mechanism and Significance. B. S. Levine, Hines.—p. 189.
*Precipitation with Cerebrospinal Fluids. A. M. Malloy, R. L. Kahn and L. Westfall, Ann Arbor, Mich.—p. 203.
*Detoxifying and Disinfecting Properties of Sodium Salicylate: Action on Diphtheria and Tetanus Toxins and on Streptococcal "Toxic" Filtrates. K. E. Birkhaug, Rochester, N. Y.—p. 212.
*Rôle of Lysozyme in Development of Intestinal Flora of New-Born Infant. L. Rosenthal and H. Lieberman, Brooklyn.—p. 226.
*Egg Yolk Agar Medium for Growth of Tubercle Bacilli. R. D. Herrold, Chicago.—p. 236.

Promotion of Phagocytosis.—Tunnicliff states that rabbits receiving intravenous injections of solutions of calcium gluconate, calcium chloride, sodium salicylate, sodium iodide, dextrose and neoarsphenamine showed a marked increase in phagocytosis by leukocytes in the blood. Physiologic solution of sodium chloride, distilled water, milk, sodium phosphate and mercurochrome-220 soluble in water or in dextrose injected intravenously into rabbits did not appear to cause any increase in phagocytosis. Intravenous and intramuscular injections of calcium gluconate produced the same high degree of phagocytosis in rabbits, intravenous injections acting twenty-four hours earlier than intramuscular. A high degree of phagocytic activity was obtained in a man with intravenous injections of calcium gluconate, followed by intramuscular injections and finally by the use of the drug by mouth. With its discontinuation, phagocytosis returned to normal. In vitro, dilute solutions of calcium gluconate, sodium iodide, dextrose and mercurochrome in dextrose stimulated phagocytosis, while solutions of sodium phos-

phate, milk and mercurochrome in water did not appear to increase phagocytic activity.

Cutaneous Hypersensitiveness in Guinea-Pigs Infected with Brucella Abortus.—Guinea-pigs infected with *Brucella* by Stroem showed cutaneous hypersensitiveness to abortin (*Brucella abortus* protein) even when gross anatomic lesions were absent. Guinea-pigs infected with one strain of *Brucella* showed cutaneous hypersensitiveness to abortin prepared from five other strains. Guinea-pigs inoculated with heat-killed vaccine or with a mixture of vaccine and purified siliceous earth did not show cutaneous hypersensitiveness to abortin. Guinea-pigs infected with *B. abortus* always gave negative reactions with tuberculin. Tuberculous guinea-pigs gave slight, somewhat atypical, reactions with abortin, presumably because of increased nonspecific hypersensitiveness.

Production of Bacteriophage by Enforced Dissociation.—Hadley and Jiménez describe experiments showing that the essential requirement for generating bacteriophage in a pure line culture is not other bacteriophage from an outside source but something that, for lack of a more concise term, may be designated the "liberating stimulus" or "incitant." It now becomes highly important to differentiate carefully between the indefinite stimulus that serves first to liberate bacteriophage in a culture and the definite units through the activity of which the lytic manifestations become transmissible. Either of the influences mentioned, working in conjunction with an alkaline medium, is able to force the cells of the culture into a new direction of growth (dissociation) or perhaps to compel them to employ a different mode of reproduction in order to sustain life.

Skin Reactivity to Streptococcus Hemolyticus-Scarlatinae.—The phenomenon of local skin reactivity to *S. hemolyticus-scarlatinae* is reported on by Shwartzman. The skin reactivity was induced by intradermal injection of a potent filtrate of *Bacillus typhosus* "agar washings." The streptococcal reacting factors were present in live cultures of the streptococcus in fluid medium. They were also present, though in lesser concentration, in filtrates of cultures, in toluene-killed cultures and in the supernatant fluid of centrifugated cultures of *S. hemolyticus-scarlatinae*. It was possible to obtain the reacting factors in stable form by alcohol precipitation of live cultures. The reacting factors persisted in the material after the removal of bacterial bodies and could be reprecipitated with acid alcohol.

"Zoning" Phenomenon.—Levine presents theoretical considerations and experimental evidence to explain the mechanism of the phenomenon of "zoning" occurring in complement fixation employed in the laboratory diagnosis of syphilis in which the preliminary incubation is done in the icebox. By "zoning" is here meant the occurrence of a stronger fixation of complement in a lesser amount of suspected serum. Workers who have had experience with the three tube cold complement-fixation method have observed that occasionally the tube containing the greater amount of serum not only manifests a weaker complement fixation than the one containing half the quantity of serum but at times shows complete hemolysis, while the lesser amount of serum shows complete inhibition of hemolysis. The author has observed this phenomenon in connection with the Kolmer complement-fixation procedure. It occurs to a similar degree in the cold incubation procedure devised by him.

Precipitation with Cerebrospinal Fluids.—The two major observations made in this study by Malloy et al. are, first, that, as is true in the Kahn reaction, precipitation in the colloidal gold and mastic reactions is brought about by the globulin fraction of the spinal fluid; and, second, that on modification of the conditions of the globulin fraction, parallel results are not obtained with the three reactions. When the substance responsible for the Kahn reaction is removed from the globulin solution either by precipitation or by thermal destruction, the solution continues to give colloidal gold and mastic reactions.

Sodium Salicylate.—Using guinea-pigs as indicators, Birkhaug found that saturated solution of sodium salicylate has the power of neutralizing diphtheria and tetanus toxins in vitro without destroying their antitoxinogenic capacity. Neutralization proceeds in direct proportion to the concentration of sodium salicylate, the duration of contact and the degree of temperature. Simultaneous injection of pure toxin and the required amount of sodium salicylate that produces a neutral mixture in vitro fails to avert death from diphtherial toxemia, although the period of survival is slightly prolonged. No neutralizing effect is exercised by the saturated solution of sodium salicylate on the toxic filtrates of hemolytic or nonhemolytic streptococci, a feature that separates these "toxins" from the true bacterial exotoxins of *Corynebacterium diphtheriae* and *Clostridium tetani*. The bactericidal action of sodium salicylate on commonly encountered pathogenic micro-organisms is about one-tenth that of phenol. The precise mode of action of sodium salicylate in vivo remains obscure. Its dual capacity to exercise antitoxic and antiseptic action in vitro suggests the hypothetic possibility that its therapeutic success in certain infectious diseases is effected by weakening the pathogenic micro-organisms and their capacity to secrete the deleterious exotoxins.

Lysozyme in Development of Intestinal Flora of the New-Born.—Rosenthal and Lieberman believe that the rapid disappearance of the initial adventitious flora from the stool of nurslings is due to the action of lysozyme. The following facts sustain this hypothesis: Bacteria of the air are especially sensitive to the action of lysozyme. Human milk in contradistinction to cow's milk contains lysozyme. The lysozyme introduced with the food passes through the intestinal canal and appears in the stool of the nursling. The period of rapid destruction of the bacteria of the air coincides with the period in which lysozyme begins to appear in detectable quantity in the stool of the nursling. Lysozyme is not found in the stools of infants fed cow's milk formula who do not get lysozyme in their food supply; rapid destruction of air-borne invaders does not occur in these infants. One may also assume that lysozyme, which persists in the stools of nurslings during the entire period of feeding by breast, continues to protect the intestine from invasion by bacteria of the air. Furthermore, lysozyme inhibits the growth of *Bacillus coli* and apparently does not affect *Bacillus bifidus*. It would follow that lysozyme may play a rôle in stabilizing the intestinal flora of nurslings by eliminating *B. coli*. Therefore the lysozyme of mother's milk is an important factor in the development of the intestinal flora of the breast-fed infant.

Egg Yolk Agar Medium for Tubercle Bacilli.—According to Herrold the use of egg yolk in nutrient agar simplifies the cultivation of *Bacillus tuberculosis* as well as of other bacteria that ordinarily require highly nutrient mediums. It can be used for both plates and slants. Comparative tests indicate that this method is much more certain than smears and not only as delicate as the inoculation of guinea-pigs but also much more prompt. Initial cultures from a variety of infected exudates demonstrate that its value in clinical diagnosis is greater than that of smears. A moist atmosphere and a temperature ranging between 34 and 36 C. are essential for optimum growth of tubercle bacilli on the egg yolk agar described.

Medical Journal and Record, New York

133: 105-156 (Feb. 4) 1931

*Physical Therapy in Private and Institutional Practice. R. Kovacs, New York.—p. 105.
Temperature and Leukocyte Count in Disorders of Liver. M. E. Goebel and A. Kanof, Brooklyn.—p. 110.
Iodine Deficiency Theory and Real Cause of Endemic Goiter. E. O. Houda, Tacoma, Wash.—p. 113.
Rules Governing Treatment of Syphilis. V. G. Vecki, San Francisco.—p. 114.
*Deceptive Factors in Acute Appendicitis. M. J. Schroeder, New York.—p. 117.
Probable Origin of Man's Belief in Sympathetic Magic and Taboo. E. J. Kempf, New York.—p. 118.
Cutaneous Medicine and Surgery: Normal Skin, Nail and Hair. H. Goodman, New York.—p. 121.
*Early Diagnosis of Myocardial Insufficiency. S. G. Strauss, New York.—p. 123.
*Relation Between Acute Rheumatic Fever and Subacute Bacterial Endocarditis. A. N. Foxe, New York.—p. 126.
*Common Myocardial Lesions. S. Pern, Melbourne, Australia.—p. 129.
*Precordial Pain: One Hundred and Thirty-Four Cases. L. Levin, Trenton, N. J.—p. 132.
*Essential Hypertension and Calcification: Tissue Metamorphosis. J. Aulde, Philadelphia.—p. 136.
Primitive Methods in Abdominal Surgery. H. Jones, Circleville, Ohio.—p. 142.
Uroscopy in Medieval Humor. W. R. Riddell, Toronto.—p. 143.

Physical Therapy in Private and in Institutional Practice.—Kovacs states that a general practitioner is expected to know and practice at least some surgery without aspiring to

the title of a full fledged surgeon; likewise, he must know a certain amount of physical therapy without being a specialist in this field. He should be familiar with simple hydrotherapeutic measures and with the basic forms of therapeutic exercise, massage and manipulation, and he may possess a few pieces of thermal and electrical apparatus. He should know how to use these measures efficiently and safely, this implying adequate previous instruction by physicians and, not least, the allotment of proper office space for undisturbed application and for a proper length of time for each patient. A busy physician should not attempt to do much in physical therapy without the aid of a skilled assistant. He should not attempt to use these measures on every patient who visits the office but only when really indicated and where prompt results can be expected, just as with other methods. He should be able to employ them at the bedside also, when their use is essential. A physical therapy department is an integral part of every modern clinic and hospital and the number of hospitals still lacking such a department is getting less and less. In March of 1929 one half of the general hospitals in the United States reported physical therapy departments and the majority of the orthopedic and nervous and mental hospitals reported likewise. It has been estimated that in a general hospital about one fifth to one fourth of the patients will be benefited by some form of physical therapy; in surgical, orthopedic and neurologic hospitals about three fourths of the patients will require physical therapy.

Deceptive Factors in Acute Appendicitis. — Schroeder emphasizes the fact that acute appendicitis is not incompatible with a chill and high fever and that one must forever be on the lookout not to be misled by coincidences, such as trauma, that have no bearing on the situation.

Early Diagnosis of Myocardial Insufficiency.—Strauss draws attention to the fact that early diagnosis of myocardial insufficiency may often be established from extracardiac signs alone and that the administration of digitalis at such a time in the patient's life may check the progress of the disease and keep him symptom free for many years.

Rheumatic Fever and Endocarditis.—Foxe examines the evidence that rheumatic fever and subacute bacterial endocarditis are related. He has found the history of rheumatic fever too often a doubtful one. This does not mean that the two diseases are not of a group. They are so in that both are diseases of the cardiovascular system. Today the latter statement is of greater significance than it has heretofore been. He has examined the clinical evidence that attempts to show that one disease follows, as a rule, when the other has preceded, and has found this evidence wanting. He has also examined the contention that *Streptococcus viridans* chooses already sclerosed valves for its habitat, and has found it without real foundation. The conclusion is reached that the two diseases are entirely separate and have a community if any in an inherently altered, cardiovascular structure.

Myocardial Lesions.—Pern believes that from a clinical point of view it would seem that the time is not far distant when most of the pathologic conditions found in the myocardium and elsewhere will be recognized as one process varying only by acuteness of attack, virulence of organism, and the amount of resistance the body is able to put up. There must be a time when cell destruction takes place without signs of reaction. This might easily lead one to think that the changes present are due to some other factor than bacterial invasion, particularly as one cannot expect to find and obtain cultures of the organism in the blood except in those cases in which all powers of defense are lost and the organism is capable of multiplying freely in the blood stream. Another point to be borne in mind is that specific elective affinity confines itself not only to organs but even to particular tissues of those organs. The rapid cardiac and vascular change that takes place in some elderly people is such as to suggest that there was an active process taking place or that they had suddenly lost all resisting powers to an infection.

Precordial Pain.—Levin classifies precordial pain as follows: (*a*) angina pectoris; (*b*) coronary occlusion; (*c*) nonparoxysmal organic pain other than coronary occlusion; (*d*) all other pain (nonorganic). In a series of 134 patients studied, the incidence of precordial pain of organic origin was 30.3 per cent. Sixty-eight per cent of the patients complaining of precordial pain of both organic and nonorganic origin were males. Three fourths of the patients with angina pectoris and coronary occlusion were males. Organic heart pain, particularly that due to coronary occlusion, occurs much earlier and in greater proportions than ordinarily supposed. The symptom of dyspnea is of no value in determining in a given case whether or not the pain has an organic basis. Paroxysmal precordial pain (angina pectoris) depends for its production on several factors; among those known are circulatory disorders, exciting stimuli, anoxemia, nerve pathways and the patient's individual threshold of pain. Ninety-four per cent of the patients with angina pectoris showed one or more abnormal physical symptoms. Of thirty-three patients traced, 45.5 per cent also showed definitely abnormal electrocardiograms. Abnormal physical conditions were found in all patients with coronary occlusion. Only one of eleven taken, 9.9 per cent, had a normal tracing. Of the patients with angina pectoris 55.2 per cent, and of those with coronary occlusion 90.3 per cent, have had their pain for a period of two years or less. Of the patients with angina pectoris 63 per cent, of those with coronary occlusion 46.0 per cent, and of those with nonparoxysmal precordial pain of organic origin other than coronary occlusion 80 per cent, secured benefit from the use of the xanthine derivatives. If the unknown cases are excluded, at the end of three years' observation (but including those ill for a greater or lesser period of time) 79.3 per cent of the patients with angina pectoris and 38.8 per cent of those with coronary occlusion are alive. Of these, 60.3 per cent of the former and 33.3 per cent of the latter are in good or improved health. If those lost to observation are excluded, all the patients with nonparoxysmal organic pain other than coronary occlusion and 83.4 per cent of those with nonorganic precordial pain are in good or improved health.

Hypertension and Calcification. — According to Aulde, heart collapse in athletes is an illustration of acute magnesium infiltration; essential hypertension presents an advanced stage, progressive in character, while calcification is the end-result and directly traceable to a dietary deficiency, a dietary in which the intake of calcium and magnesium is in unsuitable proportions. Hence, the analgesic effects on the nerve mechanism are similar to those resulting from the intraspinal injection of magnesium sulphate, or the local effects attending the administration of magnesium oxide in the case of children with summer complaint, or when the saturated solution of magnesium sulphate is applied to wounds, cuts and bruises for the relief of pain. Finally, it is stated that magnesium oxide is the only chemical known that will precipitate organic colloids in alkaline solution, so cumulative evidence exists showing that magnesium in excess is a serious handicap in maintaining health and a conspicuous factor in promoting sclerosis. Calcification is always secondary to magnesium infiltration.

Physical Therapeutics, New York

49: 1-56 (Jan.) 1931

Pylorospasm in Infants. C. E. Brush, Nashville, Tenn.—p. 1.
Electrocoagulation of Malignant Tumors of Bladder. G. Kolischer, Chicago.—p. 16.
Actinotherapy in Combination with Other Therapeutic Methods. A. Furniss, London.—p. 23.
Therapeutic Exercise: Obesity. J. C. Elsom, Madison, Wis.—p. 30.

Southern Medical Journal, Birmingham, Ala.

24: 93-180 (Feb.) 1931

*Acute Intestinal Obstruction. A. Ochsner, New Orleans.—p. 93.
*Jamaica Ginger Paralysis. W. E. Gardner, Louisville, Ky.—p. 97.
*Epidemic Cerebrospinal Meningitis. P. M. Lewis, Memphis, Tenn.—p. 101.
Three Types of Anemia. J. H. Musser, New Orleans.—p. 106.
Anemia of the New-Born. P. F. Barbour, Louisville, Ky.—p. 107.
Nutritional Injuries in Infants. H. L. Moore, Dallas, Texas.—p. 109.
*Cancer of Stomach in Southern Negro: Fifty Cases. J. B. Fitts, Atlanta, Ga.—p. 110.
*Mammary Cancer. C. A. Vance, Lexington, Ky.—p. 112.
Odyssey of Obstetrics. J. L. Andrews, Memphis, Tenn.—p. 114.
Anatomy and Diseases of Ethmoid and Sphenoid Sinuses. F. E. Hasty, Nashville, Tenn.—p. 117.
*Chronic Endocervicitis: Sequelae and Treatment. G. V. Brown, Detroit, Mich.—p. 122.
*Results of Agglutination Tests for Undulant Fever. J. H. Gibbes, Columbia, S. C.—p. 126.
Values in Public Health. P. E. Blackerby, Louisville, Ky.—p. 129.

Gastro-Enterology: Importance in Diagnosis. G. W. F. Rembert, Jackson, Miss.—p. 132.
Advisability of Revision of Dermatologic Nomenclature. J. C. Michael, Houston, Texas.—p. 134.
Has Urology Reached Place it Should Occupy in Relation to General Medicine and Surgery? W. L. Grantham, Asheville, N. C.—p. 136.
Proper Emphasis in Education. R. Wilson, Charleston, S. C.—p. 138.
Evolution and Present Status of Neuropsychiatry in Relation to Public Health. W. L. Treadway, Washington, D. C.—p. 141.
Empiricism and Science in Medical Practice. A. Stengel, Philadelphia.—p. 145.
Pathogenic Mechanism of Eczema. W. J. Highman, New York.—p. 153.
Clinical Value of Schilling's Differential Blood Count in Pyogenic Infections. J. D. Allen, Louisville, Ky.—p. 158.
Influence of Sodium Cacodylate on Leukocyte Count. J. K. Fancher, Atlanta, Ga.—p. 161.
*Arcus Senilis as Accompaniment of Cardiovascular Disease. L. C. Scott, New Orleans.—p. 165.
Narcolepsy. E. F. Wahl, Thomasville, Ga.—p. 169.
Kidney Infections. H. J. Farbach, Louisville, Ky.—p. 170.

Acute Intestinal Obstruction.—According to Ochsner, acute intestinal obstruction in spite of recent advances made is one of the most difficult conditions that the surgeon is called on to treat. It is important to distinguish both from a prognostic and a therapeutic standpoint between high and low obstructions, those in which there is an interference with the blood supply to the intestine and between the mechanical and adynamic varieties of ileus. All patients with high intestinal obstruction suffer from dehydration, hypochloremia and alkalosis. As a result of disturbance of the intestinal blood supply due to the compression of the intramural vessels, an added factor is present in high obstructions as well as in low obstructions in which there is an extramural obstruction of the blood vessels. This added factor is a toxemia the character of which is not definitely known. An early diagnosis in acute intestinal obstruction is imperative and is now difficult, because of the characteristic history of colicky, intermittent pain associated with increased peristalsis in the mechanical variety of ileus, which can be elicited by auscultation of the abdomen. Of extreme importance as regards diagnosis is roentgenography of the abdomen without the use of contrast substances. Early relief of obstruction is imperative. Hypochloremia and alkalosis must be combated, and in the treatment of the adynamic variety splanchnic block, preferably by splanchnic analgesia, is of value. Drugs in the treatment of ileus are of relatively little value, physostigmine and hypertonic solutions of sodium chloride giving the best results.

Jamaica Ginger Paralysis.—In the treatment of persons with jamaica ginger paralysis, Gardner follows the usual methods that have more recently been applied to other types of multiple neuritis. They should, first of all, have good general hygienic care, with plenty of rest in bed during the acute stages; and after all signs of the acute inflammatory process have subsided, it is recommended that such measures be used as may best keep up the nutrition of the muscles affected until the nerves have, if possible, undergone complete regeneration. Massage and galvanic electricity are of value in some cases, and the extremities affected should be kept in such position as will best prevent contractures that may result from overactivity of the flexor groups of muscles, which are usually least affected.

Epidemic Cerebrospinal Meningitis.—In thirty-two cases of epidemic cerebrospinal meningitis accompanied by ophthalmic changes observed by Lewis, only seven of the patients died. This is a mortality rate of only 21.8 per cent, which is considerably lower than the death rate for all cases during the entire epidemic. This low mortality was undoubtedly merely a coincidence. Of the patients who recovered, five were permanently blind in one eye, four from endophthalmitis and one from a central lesion. Three patients, all children, were left with a complete and permanent blindness of both eyes.

Cancer of Stomach in Southern Negro.—Fifty cases of gastric cancer in the Southern Negro are studied by Fitts and the observations are compared with fifty cases in white persons previously reported. The Negro cases were later types than the white. Gastric syphilis occurs more often in the Negro and closely simulates carcinoma. Dietetic errors were more pronounced in the Negro series. The absence of hydrochloric acid was noted more frequently. The hope of early diagnosis is remote.

Mammary Cancer.—Vance believes the fact should be impressed on the public as well as on physicians that a diagnosis of mammary cancer in its early stages can be made only by pathologic examination of tissue obtained by either excision or biopsy. After development of the classic textbook symptoms the diagnosis is apparent, but it is then usually too late to benefit the patient by operation or any other treatment.

Chronic Endocervicitis.—Brown states that in the study of chronic endocervicitis it is evident that no method of treatment is applicable to all cases. It is further evident that any plan will fail which does not take into consideration the actual structure of the cervix uteri and its contiguous parts. It is indispensable that one should bear in mind the anatomic facts and the pathologic course. By so doing it would appear sufficiently evident that the whole symptomatology and sequelae of chronic endocervicitis may be readily predicted.

Results of Agglutination Tests for Undulant Fever.—Gibbes presents evidence that casts doubt on the reliability of the agglutination test for undulant fever as a criterion for the clinical diagnosis of this disease and shows that the test as done by public health laboratories is not properly standardized in its performance or interpretation.

Arcus Senilis as Accompaniment of Cardiovascular Disease.—In a study of 179 cases of arcus senilis, Scott found that this condition is proportionately more frequent among Negro than among white patients suffering from cardiovascular ailments. Arteriosclerosis is quite commonly associated with this form of corneal degeneration. Arcus senilis is more frequently found among laborers and those who lead a strenuous physical existence than among those who lead less energetic lives. The probability of defective nutrition as a factor in the etiology cannot be disregarded.

West Virginia Medical Journal, Charleston

27: 49-96 (Feb.) 1931

Hospital Problem. H. M. Hall, Wheeling.—p. 49.
Significant Attitudes in Medicine. W. R. Laird, Montgomery, W. Va.—p. 60.
Gallbladder Visualization. E. L. Lanman, Charleston.—p. 62.
Mistakes in General Practice. G. P. Morrison, Martinsburg.—p. 70.
Carcinoma of Appendix: Case. T. E. Vass, Bluefield.—p. 72.
Congenital Hernia into Umbilical Cord. R. J. Armbrecht, Wheeling.—p. 74.
Streptococcus Infection of Antrum and Bilateral Mastoiditis with Meningitis and Recovery. O. H. Bobbitt, Charleston.—p. 75.
Caldwell-Luc Operation. F. L. Banks, Beckley.—p. 77.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Diseases in Childhood, London

6: 1-73 (Feb.) 1931

*Prognosis in Bronchiectasis. L. Findlay and S. Graham.—p. 1.
*Spinal Tumors in Childhood. J. Craig and A. Mitchell.—p. 11.
*Nutritional Xerophthalmia and Night Blindness. J. C. Spence.—p. 17.
*Chloride Metabolism in Congenital Pyloric Stenosis. N. Morris and S. Graham.—p. 27.
*Pneumonia in Measles. J. B. Ellison.—p. 37.
*Milk of New Zealand Women. H. E. Deem.—p. 53.
Otitis Media with Purulent Meningitis in Infant Nine Days Old. G. H. Dodds.—p. 71.

Prognosis in Bronchiectasis.—Since 1924, when they first practiced intratracheal injections of iodized poppy-seed oil as a routine aid to diagnosis in all cases of suspected bronchiectasis, Findlay and Graham have had under observation thirty-two definite examples of bronchiectasis. Twelve of the patients have died, one of a coincident tuberculous meningitis and four following operation for drainage of the lung cavities or attempted excision of the lung. The average duration of life after the inception of the disease in the remaining seven fatal cases was 2.63 years. Of those still alive, fourteen have been under continuous observation for periods varying between three and six years and it is from an analysis of these cases that the conclusion is drawn that the prognosis in bronchiectasis in childhood is grave, as the condition usually steadily gets worse and leads to a fatal termination. Undoubted bronchiectasis following a chronic pneumonia may disappear but only when the degree of dilatation is slight. The age of onset of the bronchiectasis would seem to influence the course of events: recovery is more probable in the examples that develop during

later childhood. During childhood the duration of the illness is of no prognostic help.

Spinal Tumors in Childhood.—Craig and Mitchell report two cases of spinal tumor, the first a cholesteatoma in a boy of 8 years, and the second a tuberculoma in a girl of 8 years. Both patients were operated on successfully. Commenting on the operations, the authors state that a laminectomy followed by incision of the dura and handling of the cord is a proceeding that will tax the resistance of a young child to the fullest extent. They believe that a two-stage operation is the method of choice in such cases, and that the best anesthetic is intratracheal gas and oxygen with as little ether as possible, and that infiltration of the operation area with a local anesthetic combined with epinephrine should be practiced. Both the patients with spinal tumor showed signs of shock after the first operation, and both disturbances of temperature after each operation. It would appear that the removal of the laminae does not cause any apparent disability of the spine when the bodies of the vertebrae are healthy. In young patients one would expect a certain amount of bone regeneration from osteogenic cells adherent to the under layer of the periosteum, which is pushed off the laminae but remains adherent to the overlying muscles.

Nutritional Xerophthalmia and Night Blindness.—Spence's investigation in seventeen cases of nutritional xerophthalmia and night blindness shows that nutritional night blindness and xerophthalmia occurs sporadically in an urban industrial population but that, although large numbers of people are apparently living on the same type of deficient diet, it is only a few that become affected by the disease. The disease was found to occur even in children whose general condition and rate of growth had been well maintained; and cure of the disease by a high vitamin diet did not necessarily result in a coincident rise in weight or in height. There was no evidence of rickets or other deficiency diseases in the patients but there was a high incidence of skin sepsis among them. In the active stage of the disease there are large numbers of epithelial cells in the urine. This is a clinical confirmation of the pathologic discovery of Wolbach and Howe that the most specific tissue change in vitamin A deficiency is a debasement and damage of epithelial structures. Apart from this skin sepsis there was no evidence of a lowered resistance to general infections in people living on a diet producing xerophthalmia. A maximum rate of cure was studied. Using this as a basis, the author showed that viosterol, ultraviolet irradiation and liver extract, curing pernicious anemia, have no curative effect on xerophthalmia and that xerophthalmia can be cured by adding as little as 10 cc. of cod liver oil to the diet daily.

Chloride Metabolism in Congenital Pyloric Stenosis.—Morris and Graham record observations that appear to justify the following conclusions: 1. In untreated pyloric stenosis there is a partial chlorine vacuum in the tissues. This can be corrected by the administration of solution of sodium chloride which, if continued, frequently leads to an excessive retention of chlorine and the production of edema, even when the chlorine content of the blood is normal. In such cases the chlorine content of the tissues is higher than normal. 2. Restoration of the blood chlorine content to normal does not result in a correction of the alkalosis, as is evidenced by the persistence of the high total carbon dioxide content and the depressed breathing. 3. A normal blood chlorine content may be accompanied by a fractional amount of chlorine in the urine. 4. To permit of a satisfactory explanation of these observations, it appears necessary to postulate either (1) the inability of the kidney to excrete chlorine or, (2) more probably, in view of the observations with urea and fixed base, the presence of chlorine in the tissues in a form other than blood chlorine. Evidence is brought forward in support of the latter view.

Pneumonia in Measles.—Micro-organisms of the influenza group were demonstrated by Ellison in the lungs in 46 per cent of a series of seventy-five cases of pneumonia complicating measles occurring during successive epidemics in London. It is probable that this is an underestimate of the frequency of these organisms in measles pneumonia. Evidence is brought forward in support of the hypothesis that acute interstitial pneumonia is a frequent and important complication of measles and that this condition is to be attributed to the agency of *Bacillus influenzae*. Acute interstitial pneumonia can be distinguished clinically and pathologically from other forms of pneumonia and may be regarded as an important cause of nontuberculous chronic pulmonary disease in later life. The conclusion is reached that patients with lobar pneumonia and bronchopneumonia can be safely nursed in general measles wards without risk of dissemination, if reasonable precautions are taken against overcrowding. Hemolytic streptococci are less important as a cause of bronchopneumonia in children than in adults with measles. The comparative rarity of empyema as a complication of measles in children is held to support this view.

Milk of New Zealand Women.—The effects of different diets on the milk secretion of women have been studied by Deem. The feeding of a high fat diet to nursing mothers was found to increase the fat percentage of their milk. The feeding of a high protein diet and a high protein plus vitamin B diet was found to increase the milk yield. The composition of the milk was not appreciably affected by great changes in the constituents of the diet other than fat. The results of twenty-eight determinations of the diurnal variation in the fat content of human milk are tabulated and recorded graphically.

British J. of Actinotherapy & Physiotherapy, London

5: 223-242 (Feb.) 1931

*Treatment of Chronic Rheumatism by Radiations. L. Hill.—p. 225.
*Treatment of High Arterial Pressure by Diathermy. J. F. H. Dally.—p. 226.
*Treatment of Pernicious Anemia by Ultraviolet Rays. D. I. Macht.—p. 228.
*Arthritis Deformans and Its Treatment by Manipulation. I. H. Lloyd-Williams.—p. 232.
New Lamp for Irradiation Therapy. B. D. H. Watters.—p. 234.
Titanium-Alloy Electrodes as Therapeutic Agent. W. A. Troup.—p. 235.
Artificial Sunlight. A. Eidinow.—p. 236.
Action of Thermal Mud of Acqui on Alkali Reserve. A. Birch.—p. 237.
Irradiation of School Children. L. Hill and A. R. Laurie.—p. 237.

Treatment of Chronic Rheumatism by Radiations.—Hill states that some patients with severe chronic rheumatism which had been treated for many weeks by short exposures to the mercury vapor lamp, the local tungsten arc and a source of infra-red rays appear to have received more benefit from two or three prolonged exposures to incandescent gas lamps than they had received in all the previous weeks; their joints became easier, looser and less painful. One man, with an early attack of rheumatic disease of both shoulders, has been able to return to work. Another, whose back was covered with acne, has been relieved of this trouble. The peak of energy of the radiation from the gas lamps is at about the same wavelength as that for the electrical sources of infra-red rays. The writer has also had constructed for his use a gas heated source of dark infra-red rays giving the same surface temperature as the electrical sources. Whatever the source may be, the heat appears to be the active agent by provoking flushing, transpiration, a pouring out of lymph, lessening of connective tissue and lessening of pain, and by promoting nutrition and so antagonizing chronic infection. As cheap and efficient sources of radiation for treatment of rheumatism, bowl reflector incandescent gas and electrical heaters are available.

Treatment of High Arterial Pressure by Diathermy.—Dally advocates diathermy carried out by recognized experts for cases of hyperpiesia, and for hyperpiesis in which no evidence exists of cardiac defect, fully developed arteriosclerosis, or chronic nephritis. He has been able carefully to assess the therapeutic results of diathermy in patients with circulatory disorders treated at his request by various electrotherapeutists. Such treatment in his experience constitutes a valuable and convenient method of lowering certain arterial pressures, even if the original causes of the pressure increase are not discoverable. It may be that the original cause is not even influenced by electric currents and that only the contributory causes are thereby minimized. From personal observation he has arrived at these conclusions: Especially in the early stages of hyperpiesia with gradually rising pressures this procedure is useful in causing relief or disappearance of the indefinite but frequently troublesome symptoms associated with disturbance of the vaso-

motor equilibrium and eliminatory difficulties due to defective metabolism. The autonomic endocrine system controls the caliber of the vascular periphery, and whether diathermy is beneficial or not in the autonomic endocrine group will entirely depend on the degree to which the cardio-arterial load is lightened by variations in peripheral resistance. There is some reason to believe that nerve tissue may act as an especially good conductor of high frequency currents. If it is confirmed, it is possible that diathermic heating may be found to exert a direct influence through nervous conducting paths, as well as by thermal action in activation of general and endocrine metabolic processes, reduction of blood viscosity, dilatation of blood vessels and acceleration of blood flow. The allergic group in which sensitization to either single or multiple antigens occurs has as yet lacked consideration as a cause of arterial pressure changes. The "essential hypertension" of American writers comprises, to a much greater extent than is generally recognized, instances of this high pressure allergic type. Under the influence of nonspecific protein therapy, in combination with diathermy as an adjuvant, most of these cases clear up. The intestinal subinfection group is a large and important group leading to absorption of pressor amines into the circulation with resultant toxic cardiovascular degeneration. In the majority of such cases, hepatic dysfunction brought about by circulatory stasis, sometimes proceeding to the formation of gallstones, is superadded. Diathermic currents from electrodes applied to the front and back of the liver, by causing active hyperemia and reducing blood viscosity, lessen congestion and thus afford material aid to this, the largest gland in the body, by restoring the important property of detoxication, one of its chief functions. Smaller subgroups include bacterial (comprising spirochetal) and coccal infections, causing general or local manifestations, exogenous toxemias from improper diet or other poisons, and rarely infestation by parasites. The chief circulatory conditions not included in the foregoing in which diathermy may be of service are anxiety states, including their effect on the unstriped muscle fibers of the vessel walls in the shape of hypertonia, temporary or more persistent; precordial pain, either of referred origin or true angina pectoris in which the nitrites have proved ineffective; sometimes early auricular fibrillation in long standing myocarditis; intermittent claudication of toxic or allergic origin. For gross cardiac, arterial and renal disease, as for low pressure states, diathermy is of no avail.

Treatment of Pernicious Anemia by Ultraviolet Rays.—Macht's article is a succinct exposition of the work done by the author and his collaborators on pernicious anemia during the past few years. By a new approach to the study of the blood, by means of phytopharmacologic methods, there has been established for the first time experimental proof of a toxic substance in the blood of pernicious anemia patients. Such a toxicologic reaction is not exhibited by specimens of blood serum from secondary anemias, leukemias, Hodgkin's disease, carcinoma and other pathologic states producing an anemic condition of the blood. The phytopharmacologic experiments have thus not only contributed to the knowledge of the etiology of pernicious anemia but have yielded a practical method of differential diagnosis. Furthermore, since the toxicity of the blood serum in pernicious anemia can be expressed quantitatively in terms of the phytotoxic index, a new means of evaluating the efficacy of a given form of therapy is available. In this way it was found that exposure of pernicious anemia serum in quartz containers to an ultraviolet lamp was followed by a marked detoxification of the serum. Such detoxification has been made and rendered more complete by the addition of minute quantities of pure eosin. In view of these laboratory observations, and of the fact that ultraviolet rays penetrate the skin to a greater extent than hitherto supposed, it was deemed advisable to study the effect of ultraviolet irradiation in clinical cases of pernicious anemia. The results so far have been extremely encouraging. Patients thus treated were improved in their general condition; their blood picture indicated a return to normality and, above all, the toxicity of the blood serum was markedly diminished. Whether the therapeutic results obtained are permanent or of brief duration can be determined only by extensive clinical studies. It is hoped that the present work will stimulate further clinical investigations. The author is at present engaged in making phytopharmacologic studies of spinal fluid from normal human subjects and those with pernicious anemia. There is evidence already that the pernicious anemia toxin is present in the spinal fluid of such patients and this may throw light on the etiology of the spinal lesions that frequently accompany pernicious anemia.

Treatment of Arthritis Deformans by Manipulation.—Lloyd-Williams gives manipulations in the second stage form of arthritis deformans as the most important part of the treatment. Manipulative treatment is aimed at bringing the joint back to normal functioning. Excessive movements are apt to result in excessive scar formation, with resulting atrophy in the muscle. Knowledge of the normal range of movement (which is variable in healthy persons of the same age) is essential; and comparison with the corresponding joint (where this is not diseased) is useful. There are two methods of producing passive movements: long and short leverage. In long leverage, the far end of the distal bone is gripped by the other hand and movement in the joint produced. In short leverage, the grip on the distal bone is nearer the joint. The author prefers long leverage for dealing with shoulder, elbow, hip and knee, as the full range of movement can be elicited without change of grip. A complete breaking down of the adhesions is not desirable at one sitting. The controlling hand on the joint prevents any tendency to dislocation, particularly in the shoulder, and also exercises pressure on the tender points of the articulation. These are usually areas of especial involvement of synovial membrane or inclusion of tendons in the inflammatory process, and this pressure, although painful at the time of movement, is of great assistance in attaining a functional result. Short leverage has advantages where adhesions in large joints are to be broken down under anesthesia.

British J. Dermatology & Syphilis, London

43: 61-108 (Feb.) 1931

*Metabolism, Endocrine Glands and Skin Diseases; Acne Vulgaris and Xanthoma. B. Bloch.—p. 61.
*Case of Trichomycosis Axillaris Rubra. W. K. Sibley and I. Muende.—p. 88.

Metabolism, Endocrine Glands and Skin Diseases.—Bloch describes investigations that show with certainty for the first time that there exists between the start and course of acne and puberty, so far as the latter is determined by the appearance of menses and of pubic and axillary hair, not only a pronounced chronological but also an inner, causal connection. This process is the function of the gonads, and in this sense acne is to be considered as a hormonal skin disease that is certainly conditioned by the endocrine glands. Earlier writers, even when they attributed to puberty a certain significance for the occurrence of acne, employed all sorts of hypotheses in order to explain why only a certain proportion of individuals suffer from acne; namely, disturbances in menstruation, anomalies of the *vita sexualis* of all kinds, pathologic digestion, even disturbances in other ductless glands, food, and so on. All these theories were constructed *ad hoc* and entirely without proof. The author's investigations make the acceptance of such auxiliary hypotheses entirely superfluous. Acne, and particularly its basis, the comedo, appears at a determined age and is so widespread that it almost can be regarded as a physiologic manifestation of the organism at the time of puberty. In its first phase it is a consequence of the physiologic function of the sexual glands, analogous to that which is in general assumed for the development of the normal secondary sexual features; e. g., the formation of terminal hair. The degree of their formation is individually different. This may be dependent on the fact that the production of the sex hormone is varied in strength in each individual, or (and this seems to the author more likely) that the follicular apparatus of the skin (the "receptor mechanism") is individually different in its sensibility to this hormone (as, for example, the type of beard varies in different men). As a result it is evident that in acne the normal physiologic action of a ductless gland, the sexual gland, on the skin leads through transition stages to a final effect which is a real disease of the skin.

Case of Trichomycosis Axillaris Rubra.—Sibley and Muende report the case of a man, aged 20, who came for treatment of a generalized eczematoid condition. He also suf-

fered from considerable dyshidrosis, and during the examination it was noticed that the hair in the right axilla was a bright red and was bathed in a red stained sweat, while that in the other axilla was brown, the color of the hair on other parts of the body. There was no follicular inflammation. Affected hairs were examined microscopically and found to be covered with small, red, hard, adherent, nodular concretions which, after clearing in potash, revealed the presence of minute cocci and some fine branching mycelium embedded in a homogeneous matrix. Several cultures made on Sabouraud's maltose agar at 25 and 37 C. resulted in the development on the third day of a feeble growth of an orange-colored coccus. The mycelial elements failed to develop. This peculiar, colored, nodular condition of the axillary hair, by virtue of the facts that it produces no symptoms and is more or less hidden from view, is rarely complained of by patients in temperate climates, although not uncommonly seen in clinics. It is characterized by firmly adherent red or reddish brown concretions, which may take the form of irregular nodules or may completely encircle the axillary (or pubic) hair, chiefly affecting their distal extremities. These concretions lie on the hair shaft and do not invade the cortex but may, on occasion, be seen to penetrate beneath the cuticle. Unlike hairs infected by ringworm, they neither break nor lose their luster. One fungus, *Nocardia tenuis* Castellani (syn. *Streptothrix, Cohnistreptothrix tenuis*), appears to be common to all such cases, the red variety being due to the addition of a coccus that produces red pigment, *Micrococcus castellanii*, whereas the black is due to the presence of *M. nigrescens*. The infection is probably conveyed by contact. It never spreads to the hair follicle or even interferes with the nutrition of the hair but gives rise to the hard nodular concretion in which the organisms can be seen to be embedded.

Lancet, London

1: 281-334 (Feb. 7) 1931

*Uses of Diathermy in Medicine and Surgery. E. P. Cumberbatch. —p. 281.
*Cancer and Tuberculosis: Development of Malignancy. T. Cherry. —p. 285.
*Thrombo-Angiitis Obliterans in Siam. T. P. Noble.—p. 288.
Influenzal Meningitis: Two Cases. J. Gibbens.—p. 291.
Pleural Fluids Complicating Intrathoracic New Growths. S. R. Gloyne. —p. 294.
Purpura Hemorrhagica Complicating Scarlet Fever: Recovery After Use of Liver Extract. C. R. Box and R. Massingham.—p. 295.
*Estimation of Urea in Urine. D. Leys.—p. 296.

Diathermy in Medicine and Surgery.—Medical diathermy is given by Cumberbatch to relieve pain and spasm, to raise temperature that is pathologically subnormal, to lower blood pressure that is unduly high, to aid the resolution of inflammation, and to aid the tissues to free themselves from local and general infection. Recently in the United States the entire body has been subjected to diathermy for the purpose of obtaining a so-called therapeutic fever. In surgery, diathermy is used to coagulate abnormal tissue *en masse*. It should be mentioned that a current capable of producing diathermy can also be used to kill tissue by desiccating it—i. e., by depriving it of water. This form of surgical treatment, known as desiccation or fulguration, is of high value in the treatment of morbid tissue that does not extend deeply below the surface. The postoperative reaction is scarcely noticeable and the scars are the best obtainable. This form of treatment is little known to the general medical profession. The author recommends it in particular to the dermatologist. A current capable of producing diathermy can also be made to divide tissue and excise it like a knife, and, at the same time, seal the divided capillaries and lymphatics. The two last mentioned forms of treatment, strictly speaking, are not diathermy.

Cancer and Tuberculosis.—The histologic conditions involving the pancreas in sixty mice dying of pseudotuberculosis are compared by Cherry with those found in sixty mice that had been inoculated with tubercle bacilli and were free from pseudotuberculosis. In the former group there is an exudation of cells, chiefly of the polymorphonuclear type, which may run on to the formation of adhesions to adjoining organs. No sign of proliferation of the secreting cells of the pancreas is found. In the second group the infiltration of the pancreatic area is mainly lymphocytic in character. Proliferation of the secreting cells of the pancreas and signs of activity in the fibroblasts of the adhesions become common. In the fifty mice there are five instances of carcinoma of the pancreas, a condition not hitherto described in this animal.

Thrombo-Angiitis Obliterans in Siam.—According to Noble, thrombo-angiitis obliterans has a universal distribution; in all probability it is as common in the East as in the West. In the East it appears to be of a milder type than in the West. Major amputations are now rarely necessary; operative treatment, apart from sympathectomy, is almost entirely confined to removal of fingers and toes. The relief from pain by periarterial sympathectomy is striking; it gives time for a collateral circulation to develop. Confusion exists in the diagnosis of localized vascular disease because of the failure on the part of the physician to examine for peripheral pulsation and to the erroneous idea that color changes in a limb must be due to Raynaud's disease or to erythromelalgia, whereas in many cases these changes are due to thrombo-angiitis obliterans.

Estimation of Urea in Urine.—Leys states that it is impossible to estimate the excretion of urea by the hypobromite method when there is a combination of bacilluria and acidosis. Bacilluria alone does not appreciably affect the result. Excess ammonia in the urine in acidosis should be allowed for by estimating by the formaldehyde method, and subtracting 2.6 cc. nitrogen for every 0.1 per cent of ammonia found, whenever the excretion of urea is estimated in patients whose urine gives a positive nitroprusside reaction.

Annales de l'Institut Pasteur, Paris

46: 1-135 (Jan.) 1931

Identity of Twort's Phenomenon and d'Herelle's Phenomenon. A. Gratia. —p. 1.
Varicella-Zoster Virus. A. Netter and A. Urbain.—p. 17.
*Innocuousness of B C G for Gravid Guinea-Pig. P. Nélis and E. Picard. —p. 27.
Nonspecific Seroreactions of Syphilis in Course of Normal Pregnancy. B. Stepowski.—p. 52.
Nature of Sanarelli's Phenomenon. P. Zdrodowski, K. Hampine and B. Woskressenski.—p. 57.
Biology of Bacillus Nephritidis-Equi. Gourvitch.—p. 64.
Susceptibility of Different Bacteria to Hydrogen Sulphide. R. Douris and J. Beck.—p. 73.
Agglutination by Fresh Serums. J. J. van Loghem.—p. 78.
Epidemic of Poliomyelitis in Department of Lower Rhine. C. Levaditi, E. Schmutz and L. Willemin.—p. 80.

Innocuousness of B C G for Gravid Guinea-Pig.—By numerous experiments on guinea-pigs, Nélis and Picard show that inoculation of gravid guinea-pigs with large doses of B C G does not produce either macroscopic or microscopic reactions imputable to the B C G vaccine. Moreover, in the young guinea-pigs born of the inoculated animals the authors were unable to detect the presence of acid-fast bacilli or the formation of tuberculous lesions of any kind.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

57: 1-37 (Jan. 24) 1931

Embolectomy. P. Moure.—p. 6.
*Case of Pseudoneoplastic Tuberculosis of Breast. R. Soupault.—p. 8.
Orthopedic Treatment of Fractures of Thigh and Leg: Utilization of Kirchner's Pin. Boppe.—p. 10.
Closed Diaphyseal Fracture of Two Bones of Leg: Osteosynthesis: Poor Anatomic and Excellent Functional Results. Coureaud.—p. 18.
*Suffocative Goiter and Pregnancy at Term: Cured by Emergency Partial Thyroidectomy. R. Fontaine and R. Bauer.—p. 20.
Epilepsy Following Simultaneous Ligature of Common Carotid and Internal Jugular. Solcard and Artin.—p. 24.
Isolated Fractures of Tibia with Luxation of Fibula. A. Lambotte.—p. 28.

Case of Pseudoneoplastic Tuberculosis of Breast.—Soupault reports a case of pseudoneoplastic tuberculosis of the breast in a woman, aged 21. The insidious and nonpainful development of the condition, the hardness of the growth, the absence of definite boundaries, the retraction of the nipple and the presence of an enlarged lymph node in the armpit suggested cancer. However, the youth of the patient and the fact that she had formerly been treated for peritoneal tuberculosis led to a diagnosis of pseudoneoplastic tuberculosis. The operation confirmed this diagnosis and the patient was cured.

Goiter and Pregnancy at Term.—A woman who was brought to the hospital during her fifth pregnancy, then at term, came under the observation of Fontaine and Bauer. She had

had a goiter since her first pregnancy but had refused to undergo an operation. The goiter had gradually become larger and a sudden attack of intense asphyxia had necessitated immediate action. When the patient entered the hospital she was suffering from extreme dyspnea, her voice was hoarse and she spoke with great difficulty. Her face and limbs were of a bluish color. The goiter was enormous and large veins were apparent beneath the skin. The pregnancy seemed normal, although it was improbable that the fetus could live unless the mother's asphyxia was immediately relieved. A partial thyroidectomy was performed under local anesthesia. A multinodular parenchymatous goiter weighing 600 Gm. was removed. Although the patient felt some shock from the operation, she began to breathe freely; her pulse was strengthened by infusions of physiologic solution of sodium chloride and by injections of camphor and digitalis. Inhalations of oxygen were given both during and after the operation. Labor set in six hours after the operation and the delivery was completed with forceps. The child was normal and the mother was able to leave the hospital in a few days.

Presse Médicale, Paris

39: 73-88 (Jan. 17) 1931

*Treatment of Eczema. J. Darier and A. Tzanck.—p. 73.

Treatment of Eczema.—Darier and Tzanck point out that eczema is fundamentally a reaction of intolerance of the skin. They recommend the use of local treatment in order to relieve the discomfort of the patient as much as possible. The lesions should be protected, washed with nonirritating antiseptic lotions and covered with a moist dressing, a light powder or a cream or ointment. The cause of the reaction should then be determined as accurately as possible, whether it is chemical, physical, traumatic or bacteritic. If the eczema proves to be alimentary, professional or external in origin, in other words if the cause can be avoided, abstention is advisable. If the reaction is caused by bacteria, the condition should be treated accordingly. Since abstention is usually difficult, however, and often impossible, the most efficient and permanent method of attack is by desensitization of the patient. The authors give an excellent review of the various treatments available for this purpose, which include specific desensitization to the particular cause and general measures that produce phylaxis.

39: 89-112 (Jan. 21) 1931

*Dysectasia of Neck of Bladder. F. Legueu and Dossot.—p. 89.
Technic and Indications of Cholecystostomies of Derivation. B. Desplas and J. Meillère.—p. 91.
*Pathogenesis of Cardiac Insufficiency in Exophthalmic Goiter and Treatment with Dextrose and Insulin. N. Kisthinios and D. M. Gomez.—p. 94.
Longstanding Phlebitis and Curative Fibrosis of Varicose Veins. G. Delater and M. Chailly.—p. 95.
Cholecystography and Rhythm of Elimination by Liver of Tetiothalein Sodium. L. Delrez and M. Paris.—p. 97.
Operative Treatment of Cryptorchidism. J. Schoemaker.—p. 99.
*Bacteriophage Treatment of Phlegmons of Tonsils. E. Halphen and N. Djiropoulos.—p. 100.
Dehydration in Treatment of Epilepsy. P. Hartenberg.—p. 101.

Dysectasia of Neck of Bladder.—Legueu and Dossot show that in cases of retention of urine from lack of opening of the neck of the bladder the dysectasia may be caused either by local anatomic lesions (either tumors or infections) or by a purely nervous disturbance. The two influences are often associated and interdependent; e. g., inflammatory lesions that in themselves cause a decrease in suppleness and elasticity of the neck of the bladder also help to establish conditions favorable to a dynamic spasm of the orifice of nervous origin. Since the condition seems to bear no relation to the size or intensity of the lesions involved, the authors feel that the practical conclusion to draw from these facts is that in cases of dysectasia of the neck of the bladder its surgical ablation is the most satisfactory treatment.

Cardiac Insufficiency in Exophthalmic Goiter.—Kisthinios and Gomez report three cases of cardiac insufficiency in the course of exophthalmic goiter in which a combined treatment of dextrose and insulin gave excellent results. They consider these three cases as confirmation of the theory that cardiac insufficiency in conditions of hyperthyroidism is caused by a defective absorption of dextrose by the heart under the influence of the increased thyroid secretions.

Bacteriophage Treatment of Phlegmons of Tonsils.—Halphen and Djiropoulos describe a method of bacteriophage treatment that they have used in 300 cases of phlegmons of the tonsils. In 90 per cent of the cases the immediate results were good and in 80 per cent there has been no recurrence of the disease. The technic is as follows: With a Pravaz syringe terminated by a needle 7 cm. long and containing 2 cc. of staphylococcal bacteriophage they make an injection 1 or 2 cm. from the seat of infection. The injection itself is only slightly painful if the inflamed tissues are not pierced; after a few seconds, however, a violent pain is felt, which lasts from five to ten minutes. Immediately afterward autohemotherapy is practiced (gluteal injection of 10 cc. of blood taken from a vein in the bend of the elbow) in order to destroy any antiphages that may be present in the organism. In most cases, after two hours the pain is greatly relieved, the trismus has yielded and the patient can swallow. After twelve hours the tumefaction is almost completely gone, and at the end of twenty-four hours the cure is in many cases complete. In certain cases a second injection of bacteriophage is necessary. This should be given twenty-four hours after the first and should be followed by a second autohemotransfusion.

Revue Française de Gynécologie et d'Obst., Paris

25: 721-784 (Dec.) 1930

*Decidual Formations of Oviduct. E. Held.—p. 721.
Complete Inversion of Bladder in Fistulas. N. Markoff.—p. 728.
Procidentia of Limbs of Fetus. J. L. Audebert.—p. 734.
Case of Infection in Extra-Uterine Pregnancy Near Term. S. Meyer.—p. 739.
Case of Uterine Endometrioma. Baillat and Bertrand.—p. 745.

Decidual Formations of Oviduct.—Held shows that decidual formations in the oviduct, as well as other ectopic decidual growths, may be caused by inflammation in either an intrauterine or an extra-uterine pregnancy with formation of a true corpus luteum; or they may appear in women, aged between 40 and 50 years, just before or at the beginning of the menopause, as the result of inflammation caused by a false corpus luteum. The author describes a case in which there might have been an ectopic pregnancy with resorption of the gestation sac, or the growth might have been caused by a corpus luteum of pregnancy.

Revue Française de Pédiatrie, Paris

6: 723-866, 1930

Erythema Nodosum. P. Fornara.—p. 723.
Intestinal Hemorrhages in Early Childhood. N. Said.—p. 734.
Effect of Several Preparations of Quinine in Treatment of Various Diseases of Respiratory Organs. M. Abelmann.—p. 747.
*Total Tonsillectomy by Sluder-Ballenger Method as Operation of Choice for Children. G. Canuyt.—p. 759.
Alveolar Rupture and Its Sequelae. E. Stransky.—p. 764.
Sign of Ischemic Gauntlet in Obstetric Paralysis of Upper Limb at Birth. H. L. Rocher.—p. 775.

Total Tonsillectomy for Children by Sluder-Ballenger Method.—Canuyt regards total tonsillectomy by the technic of Sluder-Ballenger as the method of choice for children. It is an extracapsular total enucleation, a tearing away of the tonsil at the level of the plane of cleavage that separates the capsule from the bottom of the tonsillar fossa. It may be performed with general, regional or local anesthesia. The tonsil is drawn upward and forward, completely out of its natural cavity. The operation may be performed in a few seconds and the operative results are excellent if the patient is kept in bed for a few days. Although the technic of the operation is difficult to master, the results are so satisfactory that the author recommends an extensive use of the method.

Revue de Médecine, Paris

48: 1-80 (Jan.) 1931

*Nature and Pathogenesis of Acrodynia. Péhu and A. Mestrallet.—p. 1.
Works of Léon Blum on the Kidney. A. Hanns.—p. 17.
Septicemic Form of Cancer of Suprarenals. F. Trémolières, A. Tardieu, A. Carteaud and M. E. Normand.—p. 53.

Nature and Pathogenesis of Acrodynia.—Péhu and Mestrallet, after a critical review of the literature on the subject, conclude that acrodynia is undoubtedly a disease of infectious origin, although the causal bacterium has not yet been

discovered. It is due to a neurotrophic virus producing diffuse lesions of the neuraxis, especially in the area of the infundibulum and the tuber cinereum, the mesocephalic center of the sympathetic nervous system. The disease should therefore be considered as a form of neuraxitis.

Schweizerische medizinische Wochenschrift, Basel

61: 49-72 (Jan. 17) 1931

Relation of Mind to Body. H. Sahli.—p. 49. C'td.
Salt-Free Diet. F. Grote.—p. 53.
*Successful Therapy of Tabes Dorsalis: Eight Years' Experiences with Endolumbar Arsphenamine Treatment. T. Brunner.—p. 58.
Psychologic and Psychopathologic Considerations on Sleep. A. Repond-Malévoz.—p. 63.

Endolumbar Arsphenamine Treatment of Tabes Dorsalis.—In order to determine the late therapeutic results in tabes dorsalis, Brunner sent questionnaires to eleven patients. All of them had been treated several years previously, some as early as 1923. The author discusses each case in detail and then gives a summary report of the work capacity of the patients and of the serologic results of the treatment. He asserts that the endolumbar arsphenamine treatment of tabes dorsalis gives favorable results in a short time, often after two or three treatments. Fifty-five per cent of the patients were able to follow their occupations unhindered, 20 per cent were able to do part time work, and the others showed improvement. In 40 per cent of the cases the cerebrospinal fluid was rendered completely normal and in the others the serologic conditions were considerably improved. The author advises that endolumbar arsphenamine therapy should be instituted as the first treatment in all fresh cases of tabes and also in older cases, if exacerbations or pains become manifest. Simultaneously with the endolumbar treatments, and according to a definite plan, the patients should be given a series of intravenous injections of arsphenamine, alternating with bismuth preparations. Oral iodine therapy should likewise not be neglected.

Clinica Ostetrica, Rome

33: 1-64 (Jan.) 1931

Integrity and Health of Offspring, According to New Penal Code. E. Pestalozza.—p. 1.
*Influence of Surgical Amenorrhea on Cholesteremia. T. Cuizza.—p. 5.
Pregnancy and Ascariasis, with Fatal Result. F. Patti.—p. 15.
Amenorrhea as Symptom of Fibromas Undergoing Necrosis. M. B. Cetroni.—p. 25.
Extensive Laceration of Uterus Resulting from Criminal Abortion. M. Nizza.—p. 34.

Influence of Surgical Amenorrhea on Cholesteremia.—Cuizza, in making repeated determinations of the cholesterol content of the blood in twenty-six women operated on by simple hysterectomy, hysterectomy with removal of one ovary, and hysterectomy with removal of both ovaries, found the cholesterol content for the most part slightly increased in the first, unchanged in the second, and slightly diminished in the third group. From this, he deduces that the influence of the ovarian function on the metabolism of lipoids is slight. Ether anesthesia and spinal anesthesia do not appreciably affect the cholesterol content of the blood.

Giornale di Clinica Medica, Parma

11: 1281-1376 (Dec. 30) 1930

Significance of Copper in Living Organism. L. Schindel.—p. 1281.
*Life at the Seaside and Mechanism of Action of Thalassotherapy in Persons with Extrapulmonary Tuberculosis. L. Magni.—p. 1287.
*Primary and Solitary Echinococcus Cyst of Omentum: Case. A. Tattoni.—p. 1308.
Anomalies in Development of Cervical Ribs. F. Pariset.—p. 1318.

Thalassotherapy for Extrapulmonary Tuberculosis.—Magni brings out that a careful selection of patients, their entrance in time to institutions properly equipped for their needs, an accurate study of the individual reactions, continued careful supervision after discharge from the institution, and the medical organization of seaside resorts, would reduce greatly the failures attributed to seaside treatment; and thalassotherapy, the spoil of untrained elements in the past, by proceeding in strict collaboration with the various branches of medical physical therapy, would meet the highest expectations and would achieve most brilliant results.

Primary and Solitary Echinococcus Cyst of Omentum.—Tattoni describes a case of primary and solitary echinococcus cyst of the omentum, confining himself chiefly to considerations affecting the roentgen observations, by means of which he was able to reach an exact diagnosis of the site of the morbid process.

Policlinico, Rome

38: 1-52 (Jan. 1) 1931. Medical Section

Preventive Vaccination Against Tuberculosis with B C G Vaccine in Various Countries Outside of France. A. Calmette.—p. 1.
Respiratory Curves in Various Forms of Asthma. G. Lazzaro.—p. 12.
*Examination of Respiratory Function in Evaluation of Operative Risks. A. Pozzi.—p. 25.
Frequency of Assmann Subclavicular Infiltrate. L. Sforza.—p. 42.

The Respiratory Function in Evaluation of Operative Risks.—Pozzi studied respiratory functioning in persons about to be operated on and found that a single test cannot be regarded as having a decisive value in the determination of the respiratory functional capacity of a patient. He gives what he regards as the indispensable semeiologic complex, the application of which to the study of persons to be operated on may furnish unexpected results. Of twenty cases studied, in seven he found prognostic indications of a future postoperative pulmonary complication, which were verified in 80 per cent of the cases.

38: 37-76 (Jan. 12) 1931. Practical Section

Probable Success of Work of Physicians and Instructors in Various Forms of "Instability" and "Mental Weakness." S. de Sanctis.—p. 37.
*New Reagent for Researches on Dextrose. F. Leti.—p. 49.

New Reagent for Researches on Dextrose.—Leti describes a reagent that reveals dextrose in the nonheated urine. It is obtained by mixing sodium hydroxide and bismuth subnitrate and pulverizing the mixture. The powder thus secured is hygroscopic and thermogenic. In the presence of urine containing dextrose it turns black. The reaction may be controlled chemically and microchemically.

Riforma Medica, Naples

46: 1977-2016 (Dec. 15) 1930

Cultivation of Tissues by Borrel Method. T. de Sanctis-Monaldi.—p. 1979.
*Nature of Diabetes Insipidus. C. Rizzo.—p. 1983.
Etiology of Common Psoriasis. F. Sprecher.—p. 1986.

Nature of Diabetes Insipidus.—Rizzo deals with types of polyuria due to a primary disorder of the diencephalohypophyseal region, types that assume a special importance owing to the fact that not infrequently they precede more grave and sometimes fatal disorders. The author calls attention not only to outspoken insipid types but also to mild cases, to more or less aborted cases (formes frustes), which point to diencephalohypophyseal lesions still in the incipient state and hence more easily cured. He gives also the results of his researches on the acid-base equilibrium, and on the electrolytes and the hydrosaline exchange, which aid not only in the diagnosis of the site but help also in the interpretation of the problem, which is still partly obscure, as to changes in the hydrosaline metabolism.

Beiträge zur Klinik der Tuberkulose, Berlin

76: 129-344 (Dec. 22) 1930

Pleural Indurations. T. Behrendt.—p. 129.
Tubercle Bacilli of Blood. E. Rumpf.—p. 165.
*Treatment of Pulmonary Tuberculosis with Convalescents' Blood. J. Leitner.—p. 174.
*Coal Dust in Treatment of Pulmonary Tuberculosis. W. Glaser.—p. 187.
*Results of Pneumothorax in Eight Hundred Cases. Harms and Grünewald.—p. 201.
"Suspended" Cavity in Artificial Pneumothorax. F. Pomplun.—p. 210.
Neuritis of Cervical and Brachial Plexuses After Induced Pneumothorax. H. J. Schmid.—p. 222.
Laryngeal Complication After Phrenic Avulsion. K. Zehner.—p. 227.
*Diaphragmatic Relaxation and Pulmonary Tuberculosis. L. Lagrèze and H. E. Symens.—p. 230.
Occurrence of Serositides in Course of Bone Tuberculosis. K. Schuberth.—p. 245.
Atelectasis Following Bronchostenosis. A. Trapesonzew.—p. 254.
Pulmonary Tuberculosis and Heredity. H. Münter.—p. 257.

Treatment of Tuberculosis with Blood of Convalescents.—Leitner's observations were made on sixty-three patients with pulmonary tuberculosis. Seven patients were under 20, and three over 40; the age of the remainder ranged from 20

to 40. The process was productive in fifty-six and exudative in seven. Twenty-seven patients presented the first stage of the disease, seventeen the second stage and nineteen the third stage. Eleven patients had pulmonary cavities, thirty-six an open tuberculosis and twenty-seven a closed tuberculosis. The disease was progressive in fifteen and stationary in forty-eight. Its duration varied from six months to more than five years. The blood injected was withdrawn from patients convalescing from an acute tuberculosis (early infiltrate). Defibrinated blood or the serum obtained after centrifugation was injected. From 1 to 10 cc. of blood was injected intramuscularly every five to eight days. The treatment was continued for from one to more than six months. In two cases it was combined with pneumothorax; in four, with phrenic avulsion. Among the fifteen patients with a progressive process, the condition grew worse in two; it remained stationary in two. A slight improvement was noted in four and a considerable improvement in nine. Among the forty-eight patients with a stationary process, fourteen improved slightly and thirty-four improved considerably. In fourteen of the thirty-six patients the open tuberculosis became closed. The author had tried later to replace human blood with serum from cattle immunized with attenuated human tubercle bacilli. From 2 to 5 cc. of the serum was injected intramuscularly in seven patients with an open tuberculosis, in four with a closed tuberculosis and in three with a pulmonary cavity. Two patients presented the first stage of the disease, four the second stage and five the third stage. The pulmonary process was progressive in three and stationary in eight. Three patients improved markedly, one after forty injections and the other two after twelve injections. In three patients the treatment was without results and in five the injections were followed by fever, headache, general weakness and loss of appetite. Therefore the treatment was discontinued. Leitner presumes that the action of the blood of convalescents was partly specific and partly nonspecific, acting as an irritating substance or as a hormone. The method, he says, cannot cure tuberculosis of the lung but can serve as a valuable adjuvant in carrying out collapse therapy.

Coal Dust in Treatment of Pulmonary Tuberculosis.—Glaser describes nineteen cases of pulmonary tuberculosis in which he used treatment with a coal dust preparation. A dose of 3 cc. was injected intravenously; the injection was repeated after a ten day interval. No more than three injections were given. After each injection the patient was kept in bed for three days, and the temperature was taken every two hours. The injections caused a pleuritic irritation in one patient and a bloody expectoration in another. In one instance the treatment was followed by a rapid subsidence of fever; usually the subfebrile temperature persisted or even developed afterward. The sedimentation speed of the erythrocytes sometimes became reduced or remained unchanged; the general condition improved. The injections proved to be most efficient in patients with catarrhal lesions, but the effect was transient. Remarkable improvement was observed in a case of ulcerous productivocirrhotic tuberculosis after two injections. The author points out that the action of intravenous injections proved to be different from that caused by the inhalation of carbon dust by miners.

Results of Pneumothorax: Eight Hundred Cases.—Harms and Grünewald found that an artificial pneumothorax is absolutely indicated in cases of unilateral fibrous or fibrocavernous tuberculosis; also in cases of unilateral chronic infiltration. Here, then, belong cases of an early infiltrate. The indication for the pneumothorax is relative when small inactive foci are present in the other lung. The indication is symptomatic in patients with a chronic pneumonic and ulcerous process and in benign cases of a caseous tuberculous process. The indication is urgent in severe hemoptysis. In 25 of the 800 patients, pneumothorax was induced on both sides. Among patients treated by a unilateral pneumothorax 300 were men, 475 were women and 58 were children under 15. Most of the patients were from 16 to 29 years of age. While in men the pneumothorax was about equally frequent on the two sides, in women it was more frequent on the left side (265 to 210). Development of adhesions with consecutive failure of the induced pneumothorax was observed in 232 men and in 370 women. Owing to the appearance of complications, the treatment had to be discontinued in 141 men and in 179 women, within six months. Five patients of the first group died from one to seven years after the intervention, five patients of the second group from one to six years, and seventy-seven patients of the third group from one to nine years. In three of four cases in which the indication was urgent, the patient died immediately. One patient continued to work for four years; he died ten years after the intervention. Occupational ability was restored in 55 per cent of the patients up to ten and eleven years. Development of exudate with a successive empyema occurred in ten men and fifteen women. In nine men the empyema was caused by tubercle bacilli; it proved fatal in seven. In one case the exudate was of staphylococcic origin; the prognosis is still dubious. In thirteen women the empyema was caused by tubercle bacilli; twelve of them died; in one woman the empyema was induced by streptococci and in another by pneumococci; both patients died. A spontaneous pneumothorax following an artificial pneumothorax was observed in two men and in one woman. In six women the treatment was complicated by pregnancy; the latter had to be interrupted in three on account of progression of the pulmonary process. The other three gave birth to healthy children; there was no activation of the process during pregnancy or afterward. The authors emphasize that an artificial pneumothorax is valuable not only from therapeutic but also from economic and social points of view.

Spontaneous Relaxation of Diaphragm in Pulmonary Tuberculosis.—Lagrèze and Symens treated three women and one man, aged 19, 23, 24 and 32, who had spontaneous relaxation of the diaphragm and a pulmonary tuberculosis on the same side. In one case pericarditis and in another spinal paralysis, occurring in childhood, were considered as probable causes of the diaphragmatic relaxation; in the other two cases the etiology was uncertain. The differential diagnosis from diaphragmatic hernia was based chiefly on roentgenograms that showed a double contour and a uniform arclike line of the diaphragmatic shadow. The diagnosis was confirmed by a contrast filling of the stomach or, in case of necessity, by a controlling pneumothorax; exceptionally, pneumoperitoneum was used for the same purpose. Besides, the subjective signs appeared less frequent and less severe than in cases of diaphragmatic hernia. In thirty-three cases, the associated tuberculous process was located in the left lung. One patient died within a few days from hemoptysis; in another, hemoptysis and also cardiac and respiratory disturbances developed; in the third, the process remained unchanged up to three months; the fourth patient was discharged in a grave condition after six months. In none has the diaphragmatic relaxation caused digestive disturbances or a tendency to bronchitis.

Deutsche medizinische Wochenschrift, Berlin

57: 47-88 (Jan. 9) 1931

Influence of Progress in Roentgen Treatment on Medical Thought and Practice. H. Holfelder.—p. 47.
Are the Hitherto Employed Measures Adequate for Combat of Diphtheria? P. Schmidt.—p. 49.
*Diathermy Treatment in Nephritis. W. Ewig.—p. 51.
Differential Diagnosis of Tuberculous Meningitis. O. B. Bode.—p. 54.
Aspects of Benign, Aseptic Purulent Meningitis. A. Lichtenstein.—p. 54.
*Eczema of Head Caused by Women's Hats. W. Frei.—p. 55.
Minimal Dosage of Irradiated Substances for Prophylaxis of Rickets. P. Bamberger.—p. 57.

Diathermy Treatment in Nephritis.—Ewig reports the influence of diathermy on the healthy and the diseased kidney. He found that diathermy of the healthy kidney causes an increased diuresis. Not only the elimination of water is increased but in a lesser degree also that of sodium chloride and of the nitrogen containing substances. Most effective is treatment by means of diathermy in acute glomerular nephritis. Eclamptic conditions usually disappear quickly without necessitating other therapeutic measures, especially when diathermy of both kidneys is combined with diathermy of the head. In subchronic nephritis or in contracted kidney the results of treatment of the kidneys are doubtful, whereas the cerebral symptoms of renal insufficiency can be favorably influenced by diathermy of the head. In regard to the method of diathermy of the kidneys, namely, as to how often and with what strength of the current

the treatment should be given, no general rules can be made. In acute glomerular nephritis the author recommends twice daily a two hour period of diathermy with a current strength of from 3 to 4 amperes. In cases that have lasted longer, individualization is necessary. It is frequently observed that the elimination of water and sodium chloride is even better on the day following the diathermy than on the day the treatment was given. In such cases the application is interrupted for from one to three days. The frequency of the treatment should be decided on the basis of the process of elimination.

Eczema of Head Caused by Women's Hats. — In the course of the last six months, Frei observed four women with eczema of the head. That hair dyes were not the cause of this is proved by the fact that three patients never used hair dyes and that the fourth one used only pure henna, which is not harmful. However, all four of the patients had worn the modern tight fitting hats, and the eczema was located where the hats touched the head. The top of the head was free from eczema, but the peripheral portions were affected, especially the lower parts of the occiput, the tips of the ears, and the temples, and in a lesser degree also the neck and the forehead. That the disturbance was due to a hypersensibility could be proved by cutaneous tests. On the basis of these tests the author comes to the conclusion that some of the black dyestuffs are particularly dangerous. The eczema, after it has once developed, is persistent in that it flares up again after the least irritation. The author advises that not only the one that caused the eczema but all tight fitting hats must be done away with. In regard to the diagnosis, it is added that in the later course the eczema, especially on the neck, may present the aspects of chronic circumscribed neurodermatitis (lichen Vidal); within the hairy portions, however, it appears like a seborrheal eczema, and, occasionally, a real seborrheal eczema develops. The author also points out that endocrine disturbances may perhaps be involved, because three of the four women were of the menopausal age. On the other hand, it is not impossible that the eczema developed because the hair of these women was less thick and that, as a result, the hat came in closer contact with the skin.

Jahrbuch für Kinderheilkunde, Berlin

130: 127-252 (Jan.) 1931

*Diagnosis of Pulmonary Tuberculosis in Children. V. Poulsen.—p. 127.
Malignant Diphtheria: Clinical Aspect and Treatment. F. Szirmai. —p. 138.
Influence of State of Nutrition on Protein Content of Fatty Tissue. K. Mosse and R. Bussel.—p. 166.
Organ Extracts of Spleen in Their Relation to Immunity. W. Pockels. —p. 172.
Exacerbation of Tuberculosis Following Vaccination. W. Blacher. —p. 201.
Electrocardiographic Study of Sympathetic Innervation of Heart. P. von Kiss.—p. 210.
*Acute Diffuse Glomerulonephritis in Children: Prognosis. R. Levy. —p. 215.

Diagnosis of Pulmonary Tuberculosis in Children.—Poulsen states that, although the diagnosis of pulmonary tuberculosis in a child who gives a positive tuberculin reaction is not difficult if definite infiltrative processes can be demonstrated in the lungs by means of stethoscopy or roentgenoscopy, it is extremely difficult in the many cases in which the stethoscopic examination is negative and the roentgen examination is either negative or inconclusive. In such patients it is impossible to make a diagnosis of pulmonary tuberculosis unless tubercle bacilli can be demonstrated in the sputum. Because of the fact that children usually swallow their sputum, the best method for finding tubercle bacilli is to search for them in the gastric contents. The case histories of five children are given in whom both the stethoscopic and the roentgen examinations were negative and nevertheless the examination of the gastric contents revealed the presence of tubercle bacilli. On the basis of his observations in these cases the author disagrees with some investigators who do not believe that one is justified in making a diagnosis of pulmonary tuberculosis on the basis of such a complicated examination as gastric lavage with subsequent cultivation and animal inoculation of the gastric contents. If the child does not have tuberculosis of the tonsils and has not drunk raw milk from tuberculous cows and if rupture of a tuberculous lymph node into the esophagus can be excluded, tubercle bacilli found in the stomach must have originated in the sputum and the child therefore has a focus of tuberculosis in the lungs.

Acute Diffuse Glomerulonephritis in Children: Prognosis.—Of 120 children with acute diffuse glomerulonephritis observed by Levy, only 9 (8.3 per cent) died (7 in the acute or subacute stage and 2 in the chronic stage). After-examination of 54 of the children showed that 48 (90.7 per cent) were normal. In 4 (7.4 per cent) of the children changes in the kidneys could not be excluded on the basis of the ambulatory examination, whereas in 1 (1.9 per cent) there was still present a chronic inflammatory process. In a study of the cases it was impossible to demonstrate a regular relation between the albumin content of the urine and the number of years that had elapsed since the acute attack of nephritis. There also was not a constant relation between the etiology, amount and duration of the arterial hypertension, duration of the elimination of albumin and cylinders in the urine and the prognosis of the process in the kidneys. It was noted, however, that in cases in which the nephritis appeared after impetigo a particularly long time was required for its healing. The time at which the treatment was begun did not have a marked effect on the course of the disease. A bad prognosis was given by the cases in which, despite the elimination of a large amount of albumin, the renal condition was not hemorrhagic and in cases in which uremic and eclamptic symptoms appeared or the circulation did not respond to the increased demands made on it.

Klinische Wochenschrift, Berlin

10: 1-48 (Jan. 3) 1931

Resorption from Intestine. F. Verzár.—p. 1.
Diabetes in Relation to Environment and to Trauma. F. Umber.—p. 5.
Mechanism of Orthopnea. H. Eppinger, D. Laszlo and A. Schürmeyer. —p. 10.
Energy Metabolism and Its Clinical Significance. S. G. Zondek and F. Matakas.—p. 11.
*Hepatitis and Cholecystitis as Specific Toxic Complications of Scarlet Fever. H. Schottmüller.—p. 17.
*Proliferative Hepatitis and Cholecystitis in Scarlet Fever. T. Fahr. —p. 20.
Epidemic Serous Meningitis. A. Eckstein.—p. 22.
Control of Isohemagglutinating Serums. J. Forssman.—p. 24.
*Action of Gänsslen's Injectable Liver Extract in Animal Experiments. W. Ederle and H. Kriech.—p. 25.

Hepatitis and Cholecystitis as Complications of Scarlet Fever.—Schottmüller calls attention to disturbances of the liver and of the gallbladder which develop during scarlet fever. During some years these scarlet fever complications are rare, while during other periods they are of frequent occurrence. The author describes the clinical histories of five typical cases. In discussing the symptomatology he points out that in children these complications are most frequent, whereas otherwise cholecystopathy is extremely rare in children. At the end of the first week of the scarlet fever or during the second or third week, the children complain of pains in the epigastric region. Examination reveals a swelling of the liver, especially of the right lobe, and in some cases also an enlargement of the gallbladder. The accompanying symptoms are usually fever, leukocytosis and eosinophilia. To be sure, the latter symptoms may also be due to other scarlet fever complications. In some of the cases this could be assumed, in that a benign form of arthritis, the so-called scarlet fever rheumatism, was present. In regard to the duration of the swelling of the liver the author states that it reaches its height in several days and then decreases again in the course of from one to two weeks. The fever usually lasts from one to two weeks. The scarlet fever hepatitis and cholecystitis have a benign character because serious sequelae and a fatal outcome were never observed. Of greatest interest is the question of the pathogenesis of this inflammation of the liver during scarlet fever. The benignity of the process speaks against the invasion of the liver by hemolytic streptococci. However, that this pathogenic organism is the only cause of scarlet fever is vigorously maintained by the author. As proof of this he cites the therapeutic action of the scarlet fever streptococcus immune serum. He comes to the conclusion that a toxin of the scarlet fever streptococcus is the cause of the hepatitis and cholecystitis, and he thinks that the scarlet fever rheumatoid and the scarlet

fever nephritis are likewise due to this toxin. That this toxin is of a special type is proved by the fact that other streptococcal infections do not cause such symptoms in the liver or gallbladder. Because the lymphadenitis was especially pronounced in the cases described by the author, it is probable that the toxin that causes disturbances of the liver is produced in the lymph nodes. Experiments are now being conducted to determine whether the toxin of the scarlet fever streptococcus will produce hepatic disorders in animals. In the last part of the article attention is directed to Fahr's observations, which are reported in the following article. Fahr's observations confirm that the scarlet fever streptococcus has a toxin which may produce anaphylactoid changes; that is, the morphologic aspects of anaphylaxis without its pathogenesis. The scarlet fever streptococcus shows its specificity by its anaphylactic quality.

Proliferative Hepatitis and Cholecystitis in Scarlet Fever.—Fahr describes the results of the necropsy on a boy, aged 6, in whom scarlet fever was complicated with inflammation of the liver and gallbladder. Death was caused by peritonitis. The most noteworthy observations were the proliferations in the kidneys and especially in the liver and in the wall of the gallbladder. The author considers these changes as a process of hematogenic, toxic origin. He thinks that it is an allergic phenomenon in the course of a streptococcal infection, and that the reaction which is necessary for the development of the changes is produced particularly by scarlet fever.

Action of Injectable Liver Extract.—The animal experiments reported by Ederle and Kriech were made on splenectomized white rats that had *Bartonella* anemia. It was found that Gänsslen's injectable liver extract exerted a favorable influence. Control tests convinced the authors that the effect of the extract was due neither to nonspecific protein action nor to the substance that had been added for conservation of the extract but to the liver substance. Although it is interesting that in rats with *Bartonella* anemia the function of the spleen can be replaced by intensive liver therapy, this fact does not permit inferences in regard to the etiology of pernicious anemia in human beings. However, it remains to be determined whether a parallelism exists between the action of the extract in human beings with pernicious anemia and in rats with *Bartonella* anemia. In this manner a standardization of various extracts would be possible.

Medizinische Klinik, Berlin

27: 1-40 (Jan. 2) 1931

Hygienic Conditions in Large Cities. M. Hahn.—p. 1. C'td.
Problems and Results of Recent Investigations on Physiology of Muscles. O. Riesser.—p. 5.
Irregular Genital Hemorrhages in Women During Reproductive Period. L. Adler.—p. 9.
Formation of Colonic Diverticula. G. Singer.—p. 12.
Aspects of Poisoning by Helvella Esculenta (Turban-Top). R. Unger. —p. 14.
*Tuberculin Therapy of Lymphogranuloma Inguinale. K. Erber.—p. 15.
*Aid in Diagnosis of Endocarditis Lenta. H. May.—p. 16.
Changes in Blood of Radium Workers in Joachimsthal. A. Woldrich. —p. 17.

Tuberculin Therapy of Lymphogranuloma Inguinale.—Erber first discusses the various therapeutic measures that were formerly employed in the treatment of the inguinal buboes which usually develop after chancroid. He further states that among the tumors of the inguinal lymph nodes there are some which take a torpid course, are comparatively large and cannot be traced back to a chancroid. In their microscopic tuberculoid structure they differ from the chancroid buboes, which usually soften quickly. They were designated by some as strumous buboes. The assumption that they might be tuberculous swellings of a special type has been expressed repeatedly; however, it is now known that they are a manifestation of lymphogranuloma inguinale. This can be proved by an intracutaneous vaccination with lymphogranuloma inguinale vaccine. Several Spanish authors reported that they obtained favorable results with tuberculin injections in the treatment of phagedenic chancroids. Accordingly, intracutaneous injections of small doses of tuberculin were employed in the women's hospital in Berlin for the treatment of all soft chancres that were refractory to other treatments. The author observed sixty-three cases, in which tuberculin injections were given. Among them were thirty-four chancroids without buboes, fifteen chancroids with buboes, seven ulcers of the type of the chronic ulcer and seven buboes of an unknown etiology. In 89 per cent of these cases the condition was favorably influenced by the tuberculin injections. The therapeutic effects of tuberculin were especially noticeable in the seven cases of buboes of unknown etiology. With the exception of one, all the patients were cured by tuberculin therapy. Because the definite diagnosis lymphogranuloma inguinale can be made only on the basis of the positive lymphogranuloma inguinale reaction, there is no objective proof that all cases were lymphogranuloma inguinale. However, even without this definite proof, the clinical aspects indicated that these buboes were lymphogranuloma inguinale. Recently another patient with buboes, of the same clinical aspects, was cured by tuberculin injections, and in this instance the diagnosis lymphogranuloma inguinale was corroborated by the positive lymphogranuloma inguinale reaction. Aside from small increases in temperature, which were observed in five cases, the intracutaneous tuberculin injections caused neither disturbances of the general condition, such as headache or weakness, nor other complications. In only one instance were articular manifestations of the type of rheumatic polyarthritis noted. However, it cannot be definitely stated whether this condition was caused by the lymphogranuloma inguinale or by the tuberculin therapy. On the basis of his own experiences and those which are reported in the literature, the author recommends tuberculin injections for the treatment of lymphogranuloma inguinale.

Aid in Diagnosis of Endocarditis Lenta.—Because the clinical as well as the bacteriologic diagnosis of endocarditis lenta is difficult, May recommends Kürten's formaldehyde congelation test as a diagnostic aid. The technic is as follows: To 1 cc. of the blood serum of the patient, 2 drops of a 40 per cent solution of formaldehyde is added. Before using the formaldehyde solution it is mixed with 20 per cent of sodium carbonate to neutralize it against phenolphthalein as indicator. The mixture is kept at room temperature in a test tube, which is closed with a cotton plug. To detect whether congelation has set in, the test tube is tilted slightly from time to time. The author performed this test on 210 patients and found 20 positive reactions. Of these twenty patients, seven had endocarditis lenta, ten had tuberculosis, one had syphilitic cirrhosis of the liver, one had congenital syphilis and endocarditis lenta, and one had focal nephritis following angina acuta and a peritonsillar abscess. In thirty-four cases of rheumatic endocarditis as well as in relapsing valvular disease the reaction was never positive. The author comes to the conclusion that the formaldehyde congelation of the blood serum is a reliable aid in the differentiation between endocarditis lenta and rheumatic endocarditis. However, in patients with extremely high temperature the negative reaction does not always speak against an endocarditis lenta. Moreover, for the differential diagnosis of endocarditis lenta from syphilis or tuberculosis, the reaction is not conclusive.

Münchener medizinische Wochenschrift, Munich

78: 1-48 (Jan. 2) 1931

Significance of Anamnesis for Pathologist. R. Rössle.—p. 1.
*Treatment of Dementia Paralytica, Especially Malariotherapy. Wagner-Jauregg.—p. 4.
*Iritis Following Malariotherapy of Dementia Paralytica. S. Engel. —p. 8.
Studies on Physiology of Sex. Borst, A. Döderlein and D. Gostimirović.—p. 19.
Differential Diagnosis of Tumors of Cerebellum. C. Schilling.—p. 24.
Differential Diagnosis of Epileptic Disturbances. H. Baumm.—p. 25.
Avulsion of Epiphysis of Anterior Superior Iliac Spine. K. Ebert.—p. 27.
*Serious Injury from Stroke of Lightning: Recovery. H. Dengl.—p. 27.

Treatment of Dementia Paralytica with Malariotherapy.—Wagner-Jauregg first discusses malariotherapy. He points out that although the efficacy of malariotherapy in dementia paralytica was recognized, objections were made because of the dangers it involved; but the various improvements in the technic have done away with the shortcomings. The effective dosage had, of course, to be learned as in any other medicament, and now it is also known how to reduce the intensity of the fever attacks and how to limit the number of attacks. The efficacy of malariotherapy becomes apparent when the fate of patients who have not received treatment is com-

pared with the condition of those who have undergone malariotherapy. The author further discusses other methods that have been introduced for the treatment of dementia paralytica. Of other infectious methods he mentions febris recurrens africana and rat-bite fever. A comparison of these two methods with malariotherapy has shown that a malaria cure is the most effective. However, malariotherapy cannot always be employed. Especially in countries where malaria prevails, inoculation is not effective, and in such regions, as for instance in Italy, rat-bite fever therapy is employed. The author also mentions vaccine preparations and a sulphur preparation that have been recommended for the treatment of dementia paralytica. As the best treatment of the condition he considers the prophylactic treatment of patients during late latency with positive syphilis reaction in the cerebrospinal fluid. For such cases he recommends a combination of malariotherapy with antisyphilitic treatment.

Iritis Following Malariotherapy of Dementia Paralytica.—Engel reports the case of a woman, aged 42, who developed iritis following malariotherapy of dementia paralytica. The case shows how important it is to pay attention to complaints of visual disturbances after malaria cures. Prompt therapeutic action led to recovery within sixteen days, whereas an expectant attitude might have prolonged the disturbance and endangered the vision by a secondary glaucoma. The case is of interest also on account of its etiology. The question is whether the iritis was of a syphilitic origin and was provoked by the malaria cure, or whether it was a malarial iritis. The author comes to the conclusion that in this case the iritis was of a syphilitic origin. It is assumed that a latent syphilitic focus which dates back to the primary or secondary stages was activated by the malaria cure.

Injury from Stroke of Lightning: Recovery.—Dengl reports the case of a woman who, while working in the field, was struck by lightning. Examination revealed a mark the size of a penny at the top of the head where the lightning had entered the body. The hair on the occiput was singed. Along the entire course of the spinal column a mark from 25 to 30 cm. in width was noticeable, and it was continued on the back of the thigh. A second track of lightning branched off at the neck, and a mark from 2 to 3 cm. wide was visible along the left breast and on the left side of the abdomen, and from the pubic symphysis it passed over to the right thigh. The pubic hair was singed. The mark of lightning on the back showed several skin defects and coagulation necrosis about 4 cm. in diameter. Around these, areas of black discoloration and numerous small black holes were noticeable. Examination of the internal organs revealed extremely weak heart sounds; the other organs were normal. The patient was unconscious for forty-eight hours and the sensibility could not be tested. On both sides there was a tear across the tympanic membrane. The therapeutic measures were artificial respiration and the administration of cardiac stimulants. When the woman regained consciousness the retrograde amnesia in regard to the accident continued. She complained of severe pains in the region of the burned areas and of chills. The pains and chills were counteracted by the administration of narcotics and by the application of heat. On the sixth day a lumbar puncture was made on account of severe headaches. For the defects of the skin, bandages with ointment of tannic acid were applied. The patient was discharged from the hospital twenty days after the accident. The burns as well as the tears in the tympanic membrane showed a tendency to heal. The most surprising aspect of this case is that there were no lasting nervous disturbances, although the lightning entered at the occiput and passed along the spinal column. This case also contradicts the theory that if a stroke of lightning passes near the heart either heart failure or severe cardiac injuries are the result, for the lightning passed along the left side without causing either marked cardiac or vascular disturbances. The author comes to the conclusion that neither the extent nor the location of an injury sustained by a stroke of lightning is a reliable basis for the prognosis. Observation and stimulation of respiration and of the heart action are the most important therapeutic measures to be employed.

Wiener klinische Wochenschrift, Vienna

44: 33-64 (Jan. 9) 1931

Present Status of Early Diagnosis of Cancer of Stomach. W. Berger. —p. 33. C'td.
*A Micro-Organism in Myeloblastic Leukemia: Method of Examination of Native Drop of Blood. A. Edelmann.—p. 37.
Practical Results of Heart Hormone Therapy. R. Singer.—p. 39.
Therapy of Pemphigus. L. Kumer.—p. 42.
Sphere of Action of Tuberculosis Hospital. A. Kenner.—p. 43.
Physiologic Foundations of Respiratory Exercises. A. Durig.—p. 46. C'cn.
Prophylaxis of Congenital Syphilis. E. Klaften.—p. 51.

Micro-Organism Found in a Case of Myeloblastic Leukemia.—Edelmann extracted blood from the vein of a patient with myeloblastic leukemia and immediately added a solution of sodium citrate to prevent the development of fibrin floccules. One drop of the blood was placed on a sterilized slide and then covered. The preparation was made air tight by means of paraffin. Even after twenty-two days the microscopic examination of the preparation reveals immotile erythrocytes and leukocytes, and among these blood cells one observes long structures that are narrower in the middle and somewhat enlarged at both ends. These forms show a movement that reminds one of the motility of flagellates. That this structure is a living organism is proved by its morphology and by the type of its movements; and the sterile procedure, which was used in preparing the slide, excludes the possibility of a contamination with other micro-organisms. The author directs attention to the fact that another investigator has proved that myeloblastic leukemia has a special position among the other forms of leukemia, and that it is a septic condition in which the presence of a pathogenic organism may be expected. If the micro-organism, which was observed in this case, is observed in similar cases, it might be possible to determine the etiology of myeloblastic leukemia.

Zentralblatt für Gynäkologie, Leipzig

55: 1-64 (Jan. 3) 1931

*Anterior Lobe of Hypophysis: Its Hormones and Significance of Placenta in Hormonal Processes. B. Zondek.—p. 1.
Biologic Differentiation of Hormones of Anterior Lobe of Hypophysis. E. Philipp.—p. 12.
Specificity of Female Sex Hormone. E. Wehefritz and E. Gierhake. —p. 16.
Struma Ovarii Concurring with Granulosa Cell Tumor. O. Frankl. —p. 21.
*Tuberculosis and Pregnancy. R. Kessler.—p. 27.
Circumscribed Adenomyosis of Lower Vagina. K. Heim.—p. 41.
Monofunicular Twins in Placenta Praevia. E. Strassmann.—p. 46.
Technic of Radical Vaginal Operation in Cancer of Cervix Uteri. W. Stoeckel.—p. 53.

Anterior Lobe of Hypophysis: Its Hormones in Relation to Placenta.—By means of the implantation test, Zondek could demonstrate that the hormone content of the anterior lobe of the hypophysis is quantitatively about the same in man as in woman. Since during pregnancy there is an excessive production of the hormones of the anterior lobe of the hypophysis, the question arises whether the hormones are produced only in the hypophysis or whether they are produced partly in the placenta. To answer this question the author made tests on human beings and on horses, cows and hogs. The hormonal conditions in regard to the hormones of the anterior lobe of the hypophysis were found to be as follows: 1. In pregnant women the blood as well as the urine contains excessive amounts of the hormone of the ripening of the follicles, as well as of the hormone effecting luteinization. In cows and hogs there is no increased hormone production during pregnancy. Neither blood nor urine shows an increased hormone content. 2. The human placenta contains hormones, however, only in comparatively small quantities, from 2 to 3 per cent of the quantities found in the blood and urine. The placentas of cows and of hogs do not contain hormones. 3. The anterior lobe of the hypophysis of the pregnant woman contains either no hormones at all or extremely small quantities. In the anterior lobe of the hypophysis of pregnant cows and hogs there are the same quantities of hormones as in nonpregnant animals. In the pregnant horse there is likewise an overproduction of the hormones. But whereas in the pregnant woman the overproduction can be observed during the entire term of pregnancy, in the horse the overproduction is manifest mainly during the first third of the pregnancy; and whereas the woman eliminates

large quantities of hormones with the urine, the horse although having a high hormonal content in the blood eliminates only small quantities in the urine. Examinations on the hypophysis of pregnant horses have not been made as yet. Tests on full term placentas from horses revealed a high content in folliculin but no hypophyseal hormones. The author emphasizes that, in biologic tests, generalizations should be made with discrimination. In the horse, for instance, the hormonal conditions during pregnancy differ considerably from those that are found in cows and hogs, although the placenta formation is the same in these three species. The author considers the question whether the placenta produces or only stores the hypophyseal hormone of minor importance. In investigations on minor problems, the great significance of the anterior lobe of the hypophysis for the sexual functions should not be lost sight of. Without the anterior lobe of the hypophysis and its hormones there would be no sexual function or rhythm, no maturation of the ovum, atrophy of the genitalia and no conception. If the anterior lobe is destroyed, the fertilized ovum dies.

Tuberculosis and Pregnancy.—Kessler thinks that pulmonary tuberculosis is by far too often taken as an indication for interruption of pregnancy. The favorable results reported by some physicians in charge of sanatoriums for tuberculous patients seem to indicate that the pregnancy aids the organism in its combat against tuberculosis. On the other hand, there are also patients for whom the double burden of pregnancy and tuberculosis is too much. On the basis of observation in 102 cases, the author comes to the conclusion that for a tuberculous gravida sanatorium treatment is necessary. Under the influence of fresh air treatment, rest and good food, most women are able to bring the pregnancy to full term. However, if the interruption is absolutely necessary, it is likewise necessary to place the patient in a sanatorium, for it would be wrong to consider the treatment of tuberculosis as completed with the interruption of the pregnancy. Only during the first four months of pregnancy can interruption be considered. After the fourth month interruption should never be practiced because the object is to spare the woman the puerperium. In rapidly progressing processes interruption is useless. One would sacrifice a healthy individual without being able to save the mother. It should also not be overlooked that during the last third of the pregnancy a progressive tuberculous process frequently becomes stationary.

Vrachebnaya Gazeta, Leningrad

No. **22**: 1635-1705 (Nov. 30) 1930

Treatment of Empyema with Drainage. F. Gausman.—p. 1645.
*Scarlet Fever an Amicrobic Process. G. Belonovskiy.—p. 1650.
*Acriflavine in Treatment of Scarlet Fever. E. Gurevich.—p. 1653.
Insulin and Gastric Functioning. G. Gekhtman and A. Vegner.—p. 1656.
Sodium Thiosulphate in Treatment of Eczema. A. Ivanova and Z. Khrebtova.—p. 1662.
Roentgenotherapy of Lichen Ruber Planus. I. Karmanov.—p. 1666.

Theory of Amicrobic Process of Scarlet Fever.—Belonovskiy cultivated leukocytes of blood withdrawn from patients with scarlet fever. There was an excess of lymph corpuscles and of eosinophils as in the blood in vivo. The phenomena, which are of infectious nature, could be induced in cultures of normal leukocytes; they were observed when the streptococci were absent and when the action of the toxin was nil. The author considers that scarlet fever is an amicrobic process or a reaction of the organism. The reaction depends on the presence of infectious factors which infect the cells and tissues as well as the streptococci themselves. Thus the streptococcus that is the agent of a common sore throat before the outbreak of scarlet fever becomes afterward the agent of the disease. The author finds an analogy between scarlet fever and bacteriophagia, malignant tumor and encephalitic herpes, the infectious nature of which is connected with gradual changes in the organism developing under the influence of an external stimulus. Further researches aimed to ascertain the connection between scarlet fever and anaphylactic shock and nutrition. Russian statistics indicated a decrease in the number of scarlet fever patients in the years of a poor harvest and a notable rise of the scarlet fever curve in the years of a good harvest; about 52 per cent of children with scarlet fever did not have a child brother or sister; 48 per cent belonged to families with several children. Belonovskiy refers to 30,000 cases in which local immunization was produced by spraying the throat with a virus toxin. The immunization occurred rapidly and disappeared within four months; hence it appeared to be rather a desensitization. As in anaphylaxis, the contagious substance of scarlet fever is of autochthonous origin.

Acriflavine in Treatment of Septic Scarlet Fever.—The treatment was used in twenty-four patients with a severe form of scarlet fever. In thirteen, acriflavine hydrochloride was combined with antitoxic scarlet fever serum; in eleven, it was used alone. From 0.05 to 0.2 Gm. of acriflavine (in a solution of from 0.5 to 2 per cent) was injected in the ulnar vein; a second injection was given after an interval of two or three days. The injection was usually well tolerated; it was followed immediately by a bright yellow coloration of the conjunctivae and of the skin, lasting several days. Elimination of the dye by the kidneys occurred within a few days. The disadvantages of the method consist in a possible formation of thrombi at the place of the injection, loss of weight after repeated injections, and also in vomiting, dizziness and burning in the mouth, during the injection. A marked improvement of the general condition and a decrease of signs of intoxication were observed the day after the injection; lowering of the temperature occurred two days later. The cervical lymph nodes and the submaxillary glands became less tender; their swelling was arrested. There was a relief of the cerebral and meningeal symptoms. Acriflavine appeared to be without effect on adenophlegmons and periadenitis, or on manifestations of septicopyemia. Renal diseases are a contraindication for the treatment. Gurevich stresses that, while acriflavine does not shorten the course of septic scarlet fever, it brings about notable relief.

Vrachebnoe Delo, Kharkov

13: 881-992 (July 15) 1930

Morphologic Aspect of Blood in Cases of Visceral Syphilis. A. Vydrin.—p. 891.
Constitution and Cardiac Defects. I. Pertsov and Ya. Shik.—p. 897.
*Toxoid in Treatment of Chronic Septic Diseases. A. Azarova.—p. 905.
Cases of Meningococcal Meningitis. S. Zalevskiy and A. Goldenberg.—p. 913.
Determination of Gonococcal Antigen in Urine. R. Leites and M. Izraelson.—p. 923.

Autotoxoid in Treatment of Chronic Septic Diseases.—Azarova employed the autotoxoid treatment in twenty cases of endocarditis lenta, in one case of nephrosis without a manifest involvement of the cardiovascular system, in one case of mucous and cutaneous lesions and in two cases of cholangeitis lenta. The toxoid consisted of a filtrate of streptococcus or staphylococcus bouillon cultures, from 10 to 14 days old, to which 5 per cent of human blood was added. The streptococci and staphylococci were isolated from the patients' blood or from the throat. The toxoid was administered subepidermally; no more than 0.2 cc. was injected at one puncture; the distance between the punctures was about 2 cm. The initial dose was from 0.1 to 0.5 cc.; the injections were repeated at from three to five day intervals until the dose of 2 cc. was reached. Then the dose was gradually increased to 8 cc. for a single injection, while the injections were repeated at five day intervals, whereas each successive dose was repeated four or five times. The dose of 8 cc. had been repeated four or five times; then it was decreased gradually until the dose of 5 cc. has been reached. The latter dose was continued until an appreciable improvement set in; thereupon the dose was decreased to 4, 3 and 2 cc. until the temperature became normal and the general condition appeared good. The treatment was continued at doses of from 1 to 2 cc., given once a week, for from three to six months. Thus 100 injections were given; the total dose of the toxoid varied from 200 to 300 cc. The duration of the treatment was from five to eighteen months. The local reaction consisted in the development of a blister, associated later with a hyperemia persisting for a few hours. Local infiltration, subsiding after two days, was frequent. Rarely there was formation of a small necrotic focus. In some patients, the local reaction was slight during the first months of the treatment and then increased; in others, the opposite was observed. The local reaction in fatal cases was always insignificant. Usually no temperature reaction to the injections was noted. Sometimes a general reaction, consisting of chills, blushing and somnolence, occurred.

In two cases an anaphylactic skin reaction developed. The number of leukocytes increased in 72 per cent of the cases, while the number of neutrophils increased in 80 per cent; in the remainder, their number was unchanged or even decreased. In favorable cases, the blood picture became normal under the influence of the treatment; the same was observed in cases of leukopenia. The action of the toxoid probably consists in irritation of the reticulo-endothelial system; there may be proliferation and regeneration of the reticulo-endothelial elements playing an active rôle in combating the infection. The treatment proved most efficient in cases in which signs of decompensation were absent. The curative effect of autotoxoid proved more valuable than that of heterogenous toxoid. The author points out that leukopenia occurred mostly in cases of staphylococcus septicemia and neutrophil leukocytosis in cases of streptococcus septicemia.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 173-272 (Jan. 10) 1931

Kyphosis Dorsalis Adolescentium. W. J. Gerber.—p. 174.
Practice of Midwifery. G. C. Nijhoff.—p. 183.
*Intra-Abdominal Hemorrhage Resulting from Spontaneous Rupture of Ovaries. R. Finaly.—p. 190.
Psychologic Views on Suggestion. F. E. Posthumus Meyjes.—p. 195.

Abdominal Hemorrhage from Spontaneous Rupture of Ovaries.—Finaly reports three cases of intra-abdominal hemorrhage resulting from spontaneous rupture of the ovaries, one case being the outcome of an ovarian pregnancy. From his study of the literature and his observations on these three cases he concludes that, whereas in the presence of signs of pregnancy a suddenly developing intra-abdominal hemorrhage suggests a ruptured ectopic pregnancy, the absence of signs of pregnancy points to a different diagnosis. There are, however, manifestations that, on careful examination, speak against the possibility of infectious processes, such as appendicitis, salpingitis or peritonitis. Marked intra-abdominal hemorrhages are expressed in two forms: extravasation of blood into the abdominal cavity with physical manifestations of retro-uterine hematocele. These hemorrhages may occur in women who show signs of pregnancy; in that case an ectopic pregnancy is probable. In women in whom signs of pregnancy are absent the hemorrhage may be the result of an ectopic pregnancy or of a spontaneous rupture of an ovary. In a virgin the latter assumption is plausible. The differential diagnosis between the different clinical pictures is of less importance than the establishment of the correct indications for the laparotomy. As the retro-uterine hematocele and physical signs of intraperitoneal extravasation of blood are dependent on a considerable quantity of blood, one must endeavor to establish the aforementioned indications as early as possible without these manifestations. The points of evidence are: sudden anemia, mode of and extension of the pain sensation, the relationship between pulse and temperature, and the mode and intensity of the rigidity of the abdominal muscles.

Bibliotek for Læger, Copenhagen

122: 567-610 (Dec.) 1930

*Osteitis Deformans. K. H. Krabbe and K. Ortmann.—p. 567.
Temperature in Tuberculous Tissue. J. Foged.—p. 595.
Examination of Patients with Ménière's Disease. D. Dederding.—p. 602.

Osteitis Deformans. — Krabbe and Ortmann say that a good illustration of the steadily increasing significance of roentgenology in the diagnosis of neurologic and paraneurologic conditions is afforded by their four cases, in which Paget's physiognomy was but little marked and only the roentgen examination gave the diagnosis.

Hygiea, Stockholm

92: 897-944 (Dec. 31) 1930

*Diffuse Subcortical Encephalitis. H. Marcus.—p. 913.
*Normal and Pathologic Cantering Rhythm. E. Wikner.—p. 922.

Diffuse Subcortical Encephalitis. — Pathologic-anatomic examination of the brain in Marcus's case disclosed a process limited almost exclusively to the white matter, the adjacent edge of the cortex and of the basal ganglions being somewhat affected by the process. Both the clinical condition and pathologic-anatomic observations showed a marked agreement with the so-called diffuse sclerosis or diffuse periaxial encephalitis.

Normal and Pathologic Cantering Rhythm. — Wikner reports two cases with physiologic prediastolic cantering rhythm and two with transient prediastolic cantering rhythm in connection with acute infections with more or less certain signs of organic heart disease, in which the heart function, in the usual clinical sense, was good and the course of the condition favorable.

Norsk Magasin for Lægevidenskapen, Oslo

92: 1-136 (Jan.) 1931

*Occurrence of Filtrable Micro-Organism in Blood in Pernicious Anemia. A. Holst.—p. 1.
*Purpura with Extensive Necrosis of Skin in Mild Scarlet Fever. O. Sundt.—p. 14.
*Serum in Anaphylaxis and Allergy. A. de Besche.—p. 17.
*Four Cases of Tularemia. H. A. Salvesen.—p. 28.
*Occurrence of Tularemia in Norway: Cases of Origin Other Than Through Infection from Rabbits. T. Thjøtta.—p. 32.
*Three Cases of Infection of Urinary Tract Due to Bacilli Belonging to One of Morgan's Bacteria Types. E. Waaler.—p. 41.

Occurrence of Filtrable Micro-Organism in Blood in Pernicious Anemia.—Holst asserts that in conditions diagnosed as pernicious anemia there appears in the blood a filtrable micro-organism which after transfer to hemoglobin solutions within a few days gives these a dark color and destroys their hemoglobin. He is inclined to consider this organism as significant in the etiology of pernicious anemia but he has not yet been able by inoculation of its cultures to produce the disease in animals.

Purpura with Necrosis of Skin in Mild Scarlet Fever.—In Sundt's first case, in a boy, aged 7, with the scarlet fever complicated with chickenpox, numerous subcutaneous extravasations of blood occurred which in the outer aspect of the left knee merged into one large patch resulting in extensive necrosis of the skin with formation of deep sores. The hospital stay lasted more than three months. In the second case, in a girl, aged 8, hemorrhagic nephritis set in on the eighteenth day of the scarlet fever. Improvement was followed by subcutaneous hemorrhages beginning on the twenty-third day. In the extremities, especially the lower, there were patches of up to the size of a child's hand, with necrosis of the skin on both thighs and one leg. Death occurred after six days.

Serum in Anaphylaxis and Allergy.—De Besche says that the skin-sensitizing antibodies that can always be demonstrated in allergy must be assumed to differ from the precipitins and the antibodies that cause a passive sensitization in anaphylaxis, as they do not always occur simultaneously. These skin-sensitizing antibodies, however, occur both in anaphylaxis in animals and in man (serum sickness) and no difference can be established between their nature in these conditions and in natural hypersensibility in man (allergy). His results agree in the main with those of Cooke and Spain.

Four Cases of Tularemia.—Two of Salvesen's cases are of the ulceroglandular type; two, of the glandular. Infection took place through handling rabbits. In one case stomatitis developed during the disorder.

Occurrence of Tularemia in Norway.—Thjøtta is inclined to believe that, besides rabbits, other small rodents, such as lemmings and field mice, are infected with tularemia. The large groups of lemmings in the lemming migrations are regarded as a natural concentration of the tularemia virus. Years of great lemming wanderings are said to be followed by great mortality among rabbits.

Infection of Urinary Tract with Bacilli of Morgan's Type XII.—The bacteria strains in the three cases of acute pyelocystitis presented in detail by Waaler agreed completely with Morgan's type XII and all belonged to the same serologic group. A modification of Morgan's classification is proposed, to include only bacteria not designated by other names, the different types to be numbered according to their different powers of fermentation. Morgan's bacilli, which are considered as atypical forms of *Bacillus coli*, should thus bear the generic name *Escherichia morgani* I, II, III, IV. The bacteria to which these three cases were due would be Morgan's type III.